FEB 21 1938

February 21, 1938

STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

FOR FORTY-EIGHT YEARS—IRON TRADE REVIEW

BUTT WELDING STRIP STEEL

MESTA-THOMSON-GIBB
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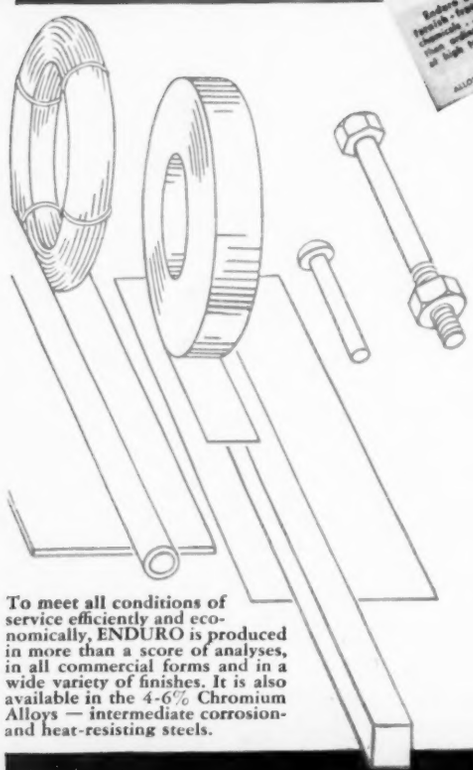

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ENDURO
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REPUBLIC'S PERFECTED STAINLESS AND HEAT-RESISTING STEELS

on what ENDURO can do for you

Samples? Yes, they're samples of ENDURO, Republic's Perfected Stainless and Heat-Resisting Steels, which Republic metallurgists will send you if you will tell them just what problems of rust, corrosion or oxidation confront you.

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Comments

Readers are invited to comment upon articles, editorials, reports, prices or other editorial material appearing in STEEL. The editors cannot publish unsigned communications, but at their discretion may permit a writer to use a pseudonym when a bona fide reason exists for withholding his identity. Letters should be brief—preferably not exceeding 250 words.

Some P.A. Pet Peeves

To the Editor:

I have been in the purchasing department of railroads and purchasing agent of car company for nearly 20 years and these DON'TS are only said with the thought that they may help our good neighbor, the salesmen. We can't get along without them, so tell them not to take the DON'TS too seriously if the DON'TS DON'T apply.

Respectfully submitted,
W. K. WILNER

Purchasing Agent,
North American Car Corp.,
Chicago.

EDITOR'S NOTE—Some of Mr. Wilner's DON'TS are presented below and may give some valuable hunches to the business missionaries who meet the purchasing agent.

DON'T call on a purchasing agent near lunch time unless you have an appointment.

DON'T read letters on his desk upside down, it's bad for the eyes.

DON'T shake hands and try to break his bones; however, his hand is not a hot poker either. Be glad to see him and let your hand and your smile tell him. Be sincere.

DON'T argue with him. After all, if he wants the floor, give it to him. You pay money to hear a speech, this one you are getting free and at the same time you haven't lost his friendship nor the order.

DON'T stay longer than is necessary. You are a busy man and so is he. There are others in the waiting room EAGER to get in. Give them ALL a "BREAK."

DON'T forget to look at yourself often and see if you are as neat as when you left home.

DON'T tell him you are quoting him the lowest price if you are quoting others lower, as he will find out, and that will be all for you.

DON'T tell him you were in the vicinity and just dropped in. Tell him you made a SPECIAL trip to see him, or that you wanted to meet him, forget about the word VICINITY.

DON'T try to be a comedian when endeavoring to sell your commodity. If he wanted to be entertained he would probably buy a ticket to a show. Remember you may be a big laugh but he is too much of a gentleman to enjoy the joke.

DON'T criticize your competitors' products—your good firm may be absorbed by them—anyway the purchasing agent will think more of you if you don't knock the other fellow. Tell the good points about your products.

DON'T forget you can't get all the orders you quote on—you also won't lose them all. Keep trying, hold your chin in and smile, your turn will come if you are in earnest to SAVE his company money.

More Thinking in Reverse

To the Editor:

The Feb. 7 issue of STEEL (page 38) cites a case wherein a manufacturer of spray equipment was forced to curtail his production because farmers were not buying this apparatus.

One of the reasons why they are not buying farm machinery is due to the New Deal's advice, handed out by the agricultural departments of our state universities. Just recently there appeared in the Fort Wayne *News Sentinel*, under the title "Timely Hints for Farmers," the advice that they should not buy any tractors, motor cars or other machinery that they could possibly do without, suggesting that business conditions were bad and that prices on equipment would be lowered.

As usual our nitwits in Washington are asking for more money to prime the pump so that they can hand it out to the farmers for not working, and advising them to put the money in baby bonds, and thus prevent factories from having work for their employes.

WALTER A. BARR

Fort Wayne, Ind.

Tax Return Cost High

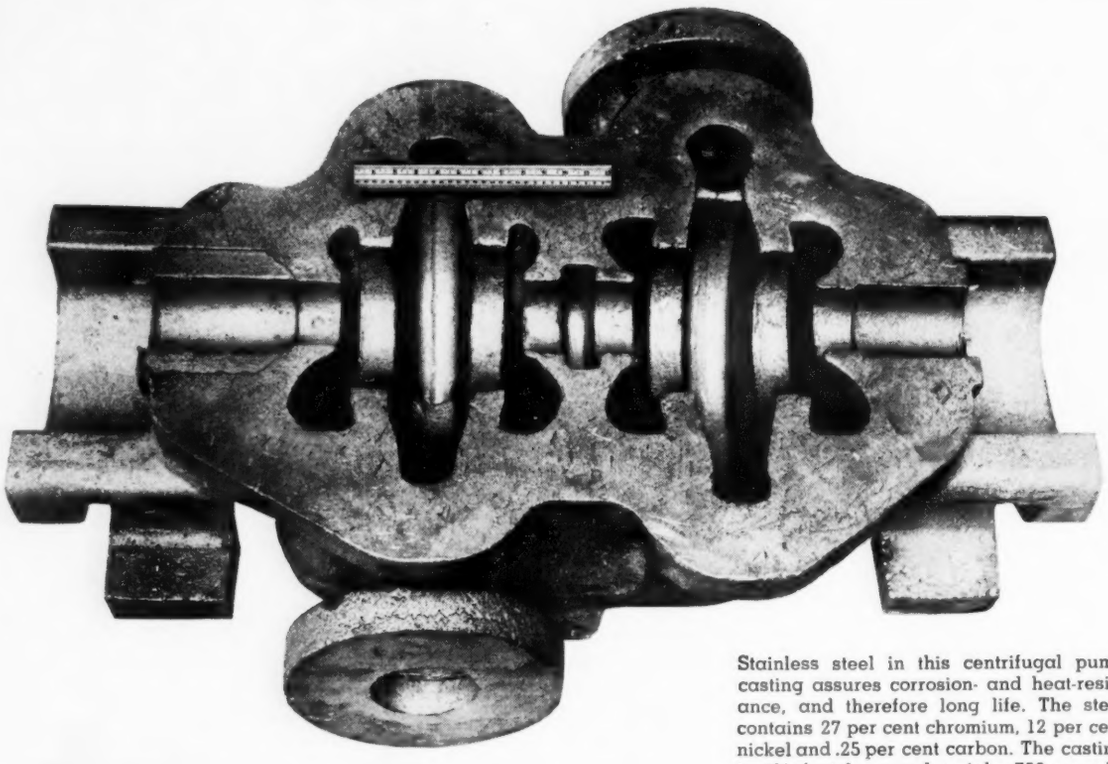
To the Editor:

The tax burden upon business has been so much a subject of discussion the last several years that the public is getting calloused to such protests, taking the attitude that "everybody objects to taxes anyway, nevertheless, we have to have them."

But one tax burden that probably has been entirely overlooked, even by those who have protested the high taxes as such, is the cost of making the returns, entirely aside from the amount of returns themselves.

The writer wonders if you noticed a little paragraph on the editorial page of the Jan. 22 issue of the *Saturday Evening Post*. It was too bad it was buried instead of being placed in a box on the cover page or in some other prominent position. Believe that if every publication would do something along this line, the facts might sink in after

(*Please turn to Page* 100)



Stainless steel in this centrifugal pump casting assures corrosion- and heat-resistance, and therefore long life. The steel contains 27 per cent chromium, 12 per cent nickel and .25 per cent carbon. The casting is 4½ feet long and weighs 700 pounds.

Better..because *it's Stainless Steel*

THE stainless steel in this two-stage centrifugal pump casting is highly resistant to the attack of nitric acid, sulphurous acid, concentrated sulphuric acid when cold, dilute sulphuric acid and many other corrosive commercial chemicals. It does not contaminate chemicals in contact with it. Stainless steel resists oxidation even at high temperatures. It will last years where other metals have lasted only a month or more. Lower maintenance costs and a better, purer product result.

In thousands of other processing applications where corrosion is encountered, stainless steel does a better job and makes a better product. You should consider its possibilities in your own plant.

Electromet, though not a manufacturer of steel, has developed a vast fund of practical data on stainless and other alloy steels and irons through supplying the ferro-alloys that go into their making. This information and the assistance of Electromet metallurgists are available to help you determine which alloy steels are suitable for your purpose. Write for further information. This is available without obligation.

Visit the STAINLESS STEEL EXHIBIT New York Museum of Science and Industry R-C-A Building - Rockefeller Center, New York

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STEEL

FOR FORTY-EIGHT YEARS—IRON TRADE REVIEW

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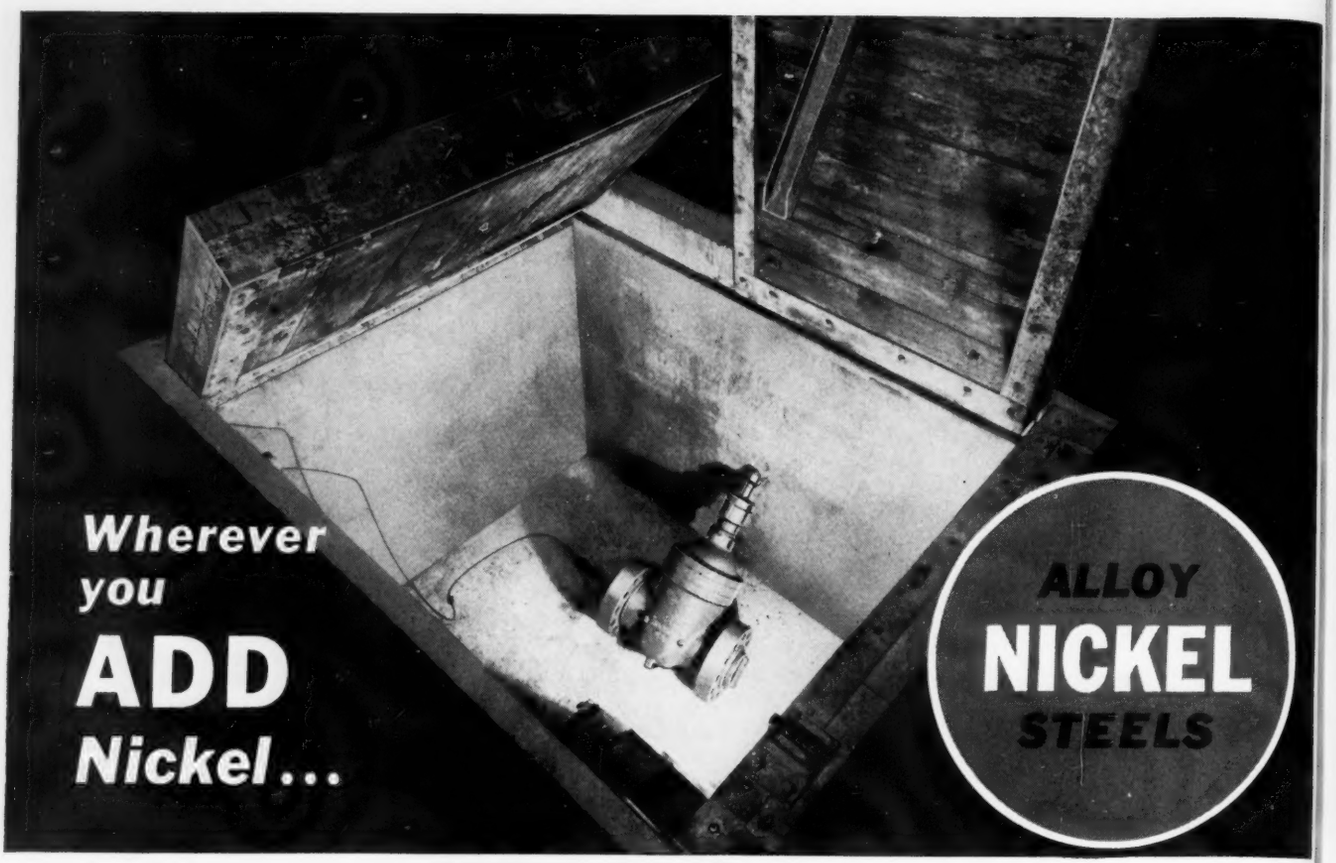
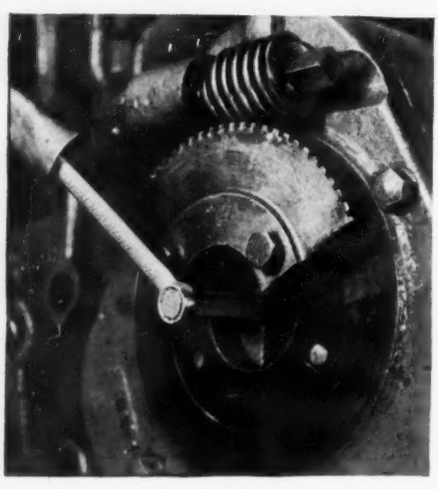


...you quickly SUBTRACT from up-keep costs



Here is a story with a tinge of David and Goliath. A tiny wrench doing battle with a torsion machine to determine the load the former will bear before deformation. Note the steel rod which the wrench is gripping. When bolts were used instead of the rod, the heads were twisted off without the slightest effect on the wrench. Note also that this particular wrench is labeled "Nickel molybdenum" steel—the reason for its herculean strength.

Resting in the concrete "destruction" pit pictured above is a high-pressure valve of cast Nickel alloy steel. This is where the Hughes Tool Company of Houston, Texas, tests the strength capacity of valves that are used in the petroleum industry. This firm made its first 10,000 p.s.i. valve over a year ago and the metal selected for the job was cast Nickel alloy steel. The high pressure 10,000 p.s.i. valve illustrated held up to 28,500 p.s.i., nearly three times its specified capacity, in this "destruction" test.

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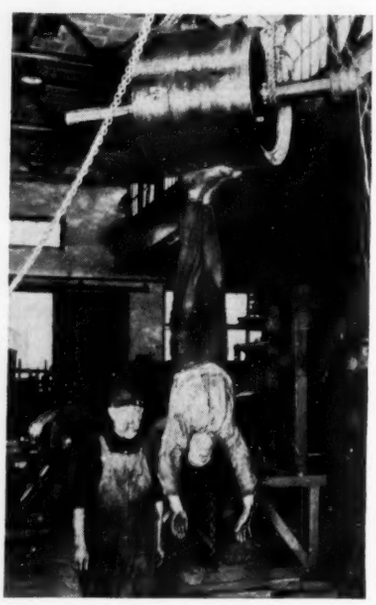


Topsy-turvy, this picture showing a man suspended from a highly magnetized pulley merely through the attraction of the nails in his shoes. Up-keep costs are usually revolutionized whenever Nickel alloy steel parts are used. High costs come down because Nickel imparts added strength and toughness—greater resistance to breakage and wear. In this case it's the Nickel steel shaft running through the magnetized pulley that acts as the watchdog of the treasury. Destined to go into magnetic separator equipment made by Dings of Milwaukee, this shaft had to be of small diameter, yet capable of carrying unusually heavy loads. Nickel steel won the job because of its superior strength—in this particular instance 200,000 p.s.i. Our engineers will be glad to consult with you and to point out the many ways in which the Nickel alloy steels will save you money.

THE INTERNATIONAL NICKEL COMPANY, INC., NEW YORK, N. Y.

As the Editor Views the News

■ ONLY by continuously improving technical processes and lowering the cost of production can progressively higher living standards be attained, it was said at the annual meeting (p. 17) in New York, last week, of the American Institute of Mining and Metallurgical Engineers. Metallurgy has traveled far but an equally long road of research and development lies ahead. In addition to metallurgical discoveries pertaining to physical characteristics, new developments in operating technique are on the horizon. Two steel companies, for example, are expected to try out a new method of producing pig iron which may cut present costs by more than $2 a ton. Eastern magnetite ores were reported as returning to favor.

• • •

Ask Wagner Act Changes

At his press conference on Friday, President Roosevelt (p. 22) said commodity prices are too high. Pointing to a chart, he cited structural steel shapes, saying they are 120 today as compared with 100 in 1929. The President made no reference to the fact the steel industry's payroll now is 16 per cent above the 1929 level, nor to taxes and other factors that have increased the cost of production.... In a report to the President, the industrial relations committee of the business advisory council suggested amendments (p. 22) which would eliminate the objectionable features of the existing national labor relations act by recognizing rights of employers and employes.

• • •

Seek More Flexibility

To provide for greater flexibility in the future the United States Steel Corp. (p. 20) proposes to change its financial structure. Common stock may be increased from 12,500,000 shares of $100 par value to an authorized 15,000,000 shares of no par value. . . . Annual capacity for producing pig iron and ferroalloys (p. 29) increased 1,100,000 gross tons to 50,698,000 gross tons during 1937, the first increase since 1933. Steel ingot capacity rose nearly 1,900,000 gross tons to 71,065,540 tons in 1937, the first increase since 1934. . . . The Steel Export association (p. 21) has appointed subcommittees to study the recent proposal of the European steel cartel that additional American products be included in international selling agreements; tin plate and pipe have figured in such agreements.

• • •

Rapid Welding

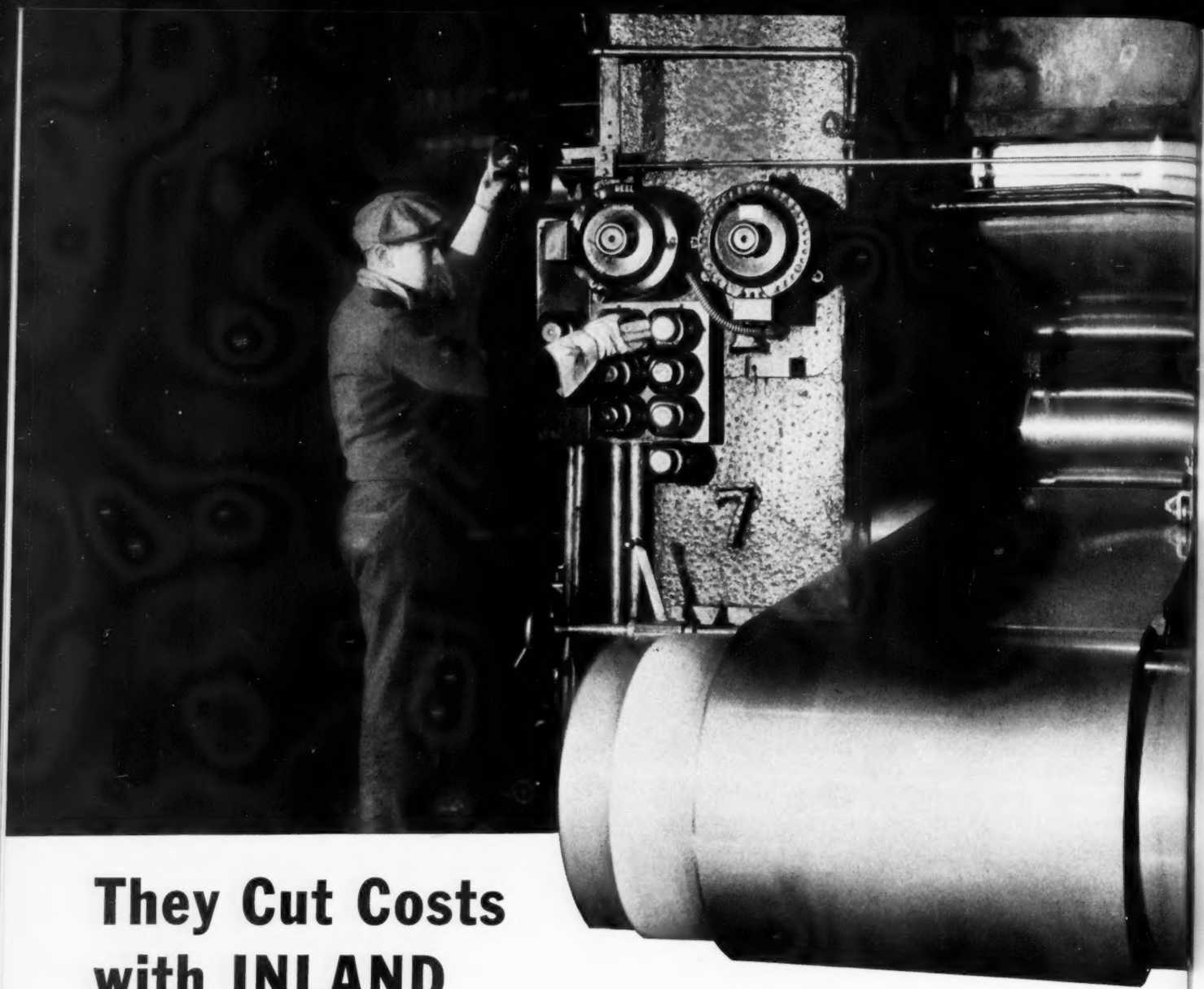
Assembly of steel underbodies for automobiles has been a complicated job requiring extensive manufacturing area and many operators and helpers. This task has been simplified in a new set-up at Detroit (p. 42) in which three multiple spot welding machines complete the entire assembly, with its 600 welds, at the rate of approximately 45 per hour and with many accompanying economies. . . . Light-gage stainless steel now is available in a form which permits economical use in scores of applications. Backed by asphalted felt (p. 46) it can be cut to shape with ordinary tools and applied by means of cement or other fastening methods. . . . A bus bar system assembled with brazed joints (p. 50) has lower electrical losses and was constructed at low cost.

• • •

Handling Costs Cut

Greater utilization of storage space and reduction of handling costs have resulted from the coupling of cranes and lifters (p. 53) in moving sheet packs at one plant. . . . By placing full responsibility on the plant engineering department (p. 58) the problem of drive maintenance is simplified and arguments occurring with divided authority are eliminated. . . . Definite control of case and other advantages are claimed for a new case hardening method (p. 62) known as dry cyaniding, conducted in a gaseous atmosphere which is a combination of carburizing gases and ammonia. . . . Those who hope to share in the distribution of $200,000 in a prize contest for new ideas on how to use arc welding profitably (p. 67) are reminded that the contest will close next June.

E. L. Shaner



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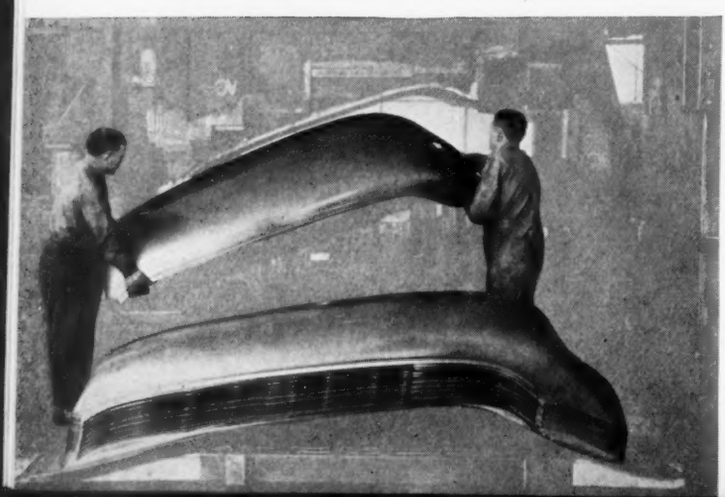

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SHEETS STRIP TIN PLATE BARS PLATES FLOOR PLATES
STRUCTURALS PILING RAILS TRACK ACCESSORIES REINFORCING BARS

Forecast "Surprising Developments" in Mining, Metallurgical Fields

■ FURTHER surprising developments in the fields of mining and metallurgy are likely to be revealed over the next few years. This was disclosed at the 148th annual meeting of the American Institute of Mining and Metallurgical Engineers last week in New York where more than 1400 engineers gathered to discuss new findings in research.

Economic problems facing the United States also were considered and the engineers were told that only by continuously improving technical processes and lowering the cost of production can progressively higher standards of living be attained.

Metallurgy has traveled a long road in bringing metals and alloys to their present state of perfection, but it was declared that an equally long road of research and development lies ahead. Metallurgists constantly are making new discoveries pertaining to physical characteristics, such as grain growth, heat treatment and the like, as well as chemical reactions. New developments in operating technique likewise are looming up. As an example, two steel companies shortly are expected to try out a new method of producing pig iron which may cut present costs more than $2 a ton.

Daniel C. Jackling
Elected president, American Institute of Mining and Metallurgical Engineers

Daniel C. Jackling, president, Utah Copper Co., New York, became the new president of the institute. Paul D. Merica, vice president, International Nickel Co. Inc., New York, and Wilfred Sykes, assistant to president, Inland Steel Co., Chicago, were named vice presidents. Newly elected officers of the institute and of the Iron and Steel, Institute of Metals and Coal divisions are listed on page 18.

Annual dinner was served at the Waldorf-Astoria, Feb. 16, upon which occasion formal presentation of medals, awards and honors were made. R. C. Allen, executive vice president, Ogiebay, Norton & Co., Cleveland, retiring president, was toastmaster.

John V. W. Reynders, consulting engineer, New York, long active in affairs of the institute and president in 1925, was made an honorary member. Mr. Reynders is well known in the steel industry, particularly in connection with bridge building. He directed construction of the steel railway arch across the Niagara river; the Gokteik viaduct in Burma, India; the Memphis bridge across the Mississippi; the Queensboro and Williamsburg bridges in New York; and completed the Bear Mountain bridge across the Hudson.

Thomas S. Washburn and John H. Nead, metallurgist and chief metallurgist, respectively, Inland Steel Co., Chicago, were co-recipients of the Robert Woolston Hunt award established in 1920 to recognize the best institute paper during a year on iron and steel. This year's award was made for the authors' paper on the structure of rimmed steel ingots, presented at the 1937 annual meeting.

Presentation of the J. E. Johnson Jr. award for young men showing exceptional promise in research, invention, or contributions to the technical literature of iron and steel, was made to Roy A. Lindgren, superintendent, blast furnace department, Wisconsin Steel Works, International Harvester Co., South Chicago, Ill. The award was made for Mr. Lindgren's meritorious study of the performance and selection of refractories for blast furnace linings.

The James Douglas medal, awarded for distinguished achievement in nonferrous metallurgy, was given to H. W. Hardinge, president, Hardinge Co., New York, manufac-

James T. MacKenzie
Elected chairman, Iron and Steel division, A. I. M. E.

Robert F. Mehl
Elected chairman, Institute of Metals division, A. I. M. E.

turer of mining and milling equipment. The citation reads: "For his inventions of apparatus for fine grinding of ores, and achievements in improving practice in that art."

Henry L. Doherty, president, Cities Service Co., New York, was awarded the Anthony F. Lucas medal for distinguished achievement in improving the technique of finding or producing petroleum. His citation was "for his recognition of the importance of solubility of natural gas in crude oil and his early advocation of scientific production of oil fields from the standpoint of energy conservation."

The institute has 73 members who have been on the rolls for 50 years or more. Ten names were added to the list this year.

Only by everlastingly improving technical processes and lowering the cost of production can we obtain progressively higher standards of living, declared Harold G. Moulton, president, Brookings Institution, Washington, in discussing the interrelations of technology, economics, government and progress. To try to accomplish this result in any other way means simply tugging in vain at our collective bootstraps.

As efficiency is increased, the benefits must be broadly disseminated among the masses by means of high wages, lower prices, or a combination thereof, he said. This is essential for a double reason. First it is a fundamental requirement for social and political stability and the well-rounded growth

Roy A. Lindgren
Recipient of J. E. Johnson Jr. award of A. I. M. E.

of a democracy. Second, a broad dissemination of the benefits of technical progress is necessary to provide the market demands for an expanding industry.

Under our capitalistic system, Mr. Moulton asserted, we produce to sell goods in the market. If we increase capacity to produce without correspondingly increasing the capacity of the masses to purchase, we simply reach an impasse. Goods pile up unsold and then production schedules have to be reduced, with unemployment both of capital and labor the result. Industrial growth, he concluded, along with development and progress require expansion of consuming power step by step with the expansion of producing power.

The volume of labor legislation enacted in the last several years has brought us abreast of the most "advanced" countries of the world, stated Leo Wolman, professor of economics, Columbia university, New York. We now have on our statute books, federal and local, comprehensive systems of unemployment insurance and old age pensions, measures providing a variety of subsidies to the indigent and incapacitated and an expanding body of minimum wage legislation.

But in spite of all this, there is an uneasy feeling that the essential problems of labor remain substantially unsolved within the ranks of labor, the chief beneficiaries of recent policies and legislation, professor Wolman continued. This uneasiness is doubtless in part a reflection of the current depression in business. Even at the peak of employment in 1937, the volume of unemployment was estimated at 6,000,000 by the National Industrial Conference board and 9,000,000 by the American Federation of Labor. He pointed out that our latest recovery is the first prolonged recovery in American economic history in the course of which the unemployed of the preceding depression failed to be substantially re-employed during at least some phase of the subsequent recovery.

Underlying the government's policies on labor has been a deep-seated belief that income should be shifted

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from the consumers of capital to the consumers of goods, from savers to spenders, from the rich to the poor, and thus stabilize economic activity and perpetuate prosperity, he said. Closely associated with these policies has been the desire to regulate the introduction of labor-saving machinery, to restrain the rapid rise of efficiency in industry, and to moderate advances in the productivity of labor. Related to our large and persistent volume of unemployment and the serious uncertainties of our business situation, the economic policies may be considered to have done more harm than good.

The labor policy is only one and probably not a dominant one of the multitude of forces that have recently molded the shape and fixed the course of our economic activities, the speaker declared. The conditions

Thomas S. Washburn
Co-recipient of A. I. M. E. Robert Woolston Hunt award

of labor we have latterly put into effect in this country seem to depart from the accepted standards of moderation and reasonableness. They are integral elements of the larger policy of price control, restriction of output, pump-priming, and the raising of consumers' purchasing power. As such they have run a long course in many parts of the world and they have not come through with flying colors, Prof. Wolman concluded.

One of the problems facing the steel industry is that of future sources for iron ore. Carl Zapffe, manager, iron ore properties, Northern Pacific railway, in discussing this problem declared that even if our present estimated reserves will last 35 years, from a national standpoint reserves should be established which will last a hundred years.

The problem of beneficiation of marginal ores should be considered a problem of the present, not the future, he said. Much ore is still available that apparently is not suited to any simple form of treatment. It may be a trifle high in volatiles or silica or phosphorus, but not very low in iron. Many users of ore merely regard it as a future reserve. Mr. Zapffe thought that the ores higher in silica should be mined at once and absorbed although low-silica ores are still abundant.

One favorable aspect, according to Mr. Zapffe, is the fact that small treatment plants are increasing in number which are employing new types of equipment and processes for the beneficiation of lean ore. Steel companies should encourage these small companies by buying their output, he concluded.

Turns to Eastern Ore

Eastern magnetite ores now are returning to favor. C. E. Agnew, blast furnace superintendent, Alan Wood Steel Co., Conshohocken, Pa., showed that these eastern ores, with proper physical preparation will reduce just as easily as lake hematites. As a result, the eastern producer is placed at just as much of an advantage as he was formerly at a disadvantage in comparison with Midwestern producers. A few years ago the Alan Wood company acquired ore properties at Oxford and Wharton, N. J., with a total annual capacity of 350,000 tons. Some difficulty was encountered at first in handling these ores, but this was overcome by reducing the silica content through concentration and sintering. Costs have been reduced considerably. One furnace, newly lined, has averaged only 1479 pounds of coke per ton of iron for the past year compared with as much as 2000 previously.

Cost of producing pig iron can be reduced several dollars a ton by increasing top-furnace top pressure, according to Julian M. Avery, metallurgist. Arthur D. Little Inc., Cambridge, Mass. Pressure operation, he said, offers a virgin field for development of both blast furnace design and operating technique.

Fundamentally, Mr. Avery's suggestion of pressure operation is based upon the theory that if under a given set of conditions, the overall pressure of gases within a blast furnace is substantially increased by artificially increasing the top pressure, iron ore should be reduced more rapidly in the furnace stack, and a given degree of reduction should, therefore, be reached at a higher level in the furnace than is the case in normal operation. This should result in decreased solution loss.

Mr. Avery concludes that theoretically it is possible by using sufficiently high pressure to eliminate solution loss entirely. It seems clear, Mr. Avery said, that pressure operation, through its effect on solution loss, may be expected to cause a drastic change in the thermal balance of the blast furnace which should permit wider control of pig iron quality, decreased blast temperature and increased production from a furnace of given size without encountering a shortage of high temperature hearth heat.

Substantial benefits may be obtained by using top pressure of from 10 to 30 pounds, according to Mr. Avery, and considerably higher pressures may ultimately be found desirable. Additional blast power required may in most cases be recovered by expanding top gases. Further, production may eventually be doubled through pressure operation. This increased capacity, along with fuel economy and savings in fixed charged, will result in considerably reducing overall costs.

Mr. Avery added that the process would permit the steel industry to use in normal times only its most efficient blast furnaces, and to hold less efficient furnaces as standby equipment. This would help to stabilize the price of pig iron in times of unusually heavy demand.

John H. Nead
Co-recipient of A. I. M. E. Robert Woolston Hunt award

In studying the desulphurizing powers of blast furnace slags, W. F. Holbrook, chemist, United States bureau of mines, Washington, found that increasing the temperature from 1475 degrees Cent. to 1525 degrees Cent. would double the desulphurization ratio of most ordinary blast furnace slag compositions. At the same blast furnace session, an interesting discussion also was presented on ancient Chinese iron castings which dated back to the early sixth century, A.D. These castings varied considerably in composition although the relatively low phosphorus content was noted. The Chinese were not particularly con-

(*Please turn to Page* 70)

U. S. Steel Plans Changes in Capital Structure; Seeks More Flexibility

■ STOCKHOLDERS of the United States Steel Corp. at their annual meeting, April 4, will be asked to authorize changes in the capital set-up.

The object is to make the capital structure more flexible from the standpoint of future financing and to give directors a wider choice in selecting the method of financing most suitable to the occasion.

Plans include a change in the common stock from $100 par value to no par, and an increase of authorized common stock from 12,500,000 to 15,000,000 shares. No change is proposed in the preferred stock.

Directors will be authorized to issue bonds, debentures and other obligations convertible into common stock. At present there are certain restrictions on the issuance of secured obligations which will not be impaired by this proposal. It was stated officially that there are no immediate plans for financing.

Earned Surplus Unaffected

Common stockholders will have pro rata subscription rights for any common stock or any obligations convertible into common stock issued and sold for cash.

In changing the common stock to no par value, the directors propose that the stated capital for outstanding common shall be $75 a share, thus decreasing the capital. This will increase the capital surplus by $217,581,300 to $298,831,321.

Directors contemplate reducing intangible assets appearing in the consolidated balance sheet Dec. 31, 1937 to a nominal value of $1 by charging the amount of $260,368,521 against the capital surplus, thus leaving a capital surplus of $38,462,800. The earned surplus will not be affected by any of the proposed changes.

During the five-year period ended Dec. 31, 1937 the corporation and its subsidiaries expended approximately $250,000,000 for rehabilitation and new construction, according to a letter by Chairman Taylor to the stockholders. Of this amount approximately $225,000,000 was provided from its own resources without the issue and sale of any securities. On Jan. 1, 1938 approximately $80,000,000 previously authorized for these purposes was yet to be expended. To carry on this program and to maintain its working assets position the corporation on Feb. 1, 1938 borrowed $50,000,000 in the form of bank loans maturing in one, two and three years.

The adoption of the amendments necessary to make these capital changes possible requires the approval of holders of record at the close of business March 5 of two-thirds of each class of the then outstanding shares of preferred and common stocks.

FINANCIAL

■ LUKENS Steel Co., Coatesville, Pa., reports net income of $158,218 for the fiscal year ended Oct. 16, 1937. This is slightly less than 50 cents per share on 317,976 shares of common stock outstanding. Income before deduction of bond interest amounted to $329,332, equivalent to 3.11 per cent on consolidated invested capital. In the preceding fiscal year the company reported a net income of $112,205.

♦

Colorado Fuel & Iron Corp., Denver, has an indicated net profit of $718,989 for 1937 against $2,029,305 in 1936. In the fourth quarter of 1937 it had an indicated net loss of $491,019 compared with a net profit of $108,263 for the comparable period in 1936.

♦

American Rolling Mill Co., Middletown, O., has acquired 227,000 common shares of Rustless Iron & Steel Corp., Baltimore, by purchase from stockholders during 1937. This is in addition to 178,700 shares previously owned. The company owned 47.05 per cent of the common stock outstanding Jan. 1, 1938, and had three representatives on the board of seven.

♦

Youngstown Sheet & Tube Co. declared the regular quarterly dividend of $1.37½ per share on its preferred shares, payable April 1 to record of March 12.

♦

Directors of Acme Steel Co., Chicago, declared a quarterly common dividend of 50 cents a share, payable March 12 to record of March 1. Previously the company paid $1 quarterly.

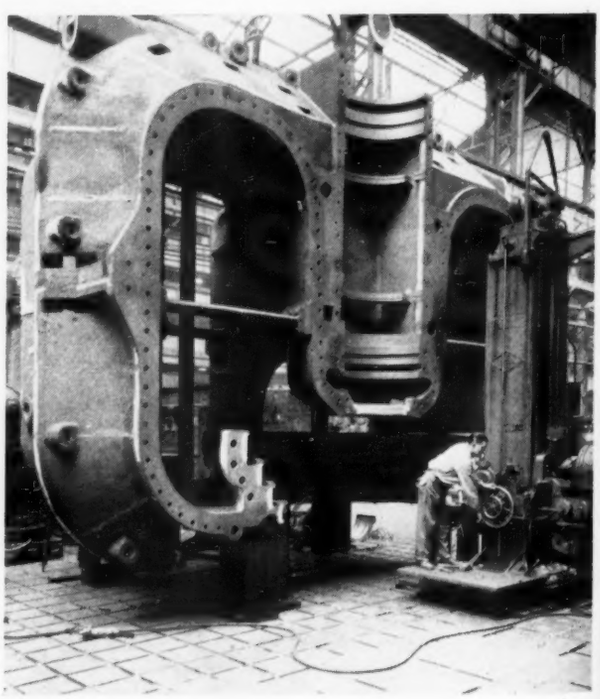
♦

Crucible Steel Co. of America, New York, declared a dividend of $1.75 a share on preferred stock, payable on arrears March 31 to stockholders of record March 16. Dividend of $3.75 a share on arrears was paid Dec. 24, 1937.

♦

Great Northern Iron Ore Properties, St. Paul, reports net profit for the year ending Dec. 31, 1937 of $1,256,428 or 83 cents a share on 1,500,000 shares of capital stock. This compares with $709,928 or 47 cents a share on the same number of shares in 1936.

Mahomet Goes to the Mountain



■ **Sometimes it is easier to bring the machine to the work than to move the work. Here a portable drill press has been brought into position to drill flange holes in the lower half of the exhaust hood of a large turbine under construction in General Electric's Schenectady works**

PRODUCTION

■ HOLDING close to the level of about 30 per cent from which it has departed little since the middle of January the national operating rate last week advanced 1 point to 31 per cent.

Cincinnati — Declined 6 points to 22 per cent. Higher rate indicated for this week.

Pittsburgh—Down 2 points to 29 per cent, due to sharp curtailment by one producer.

Wheeling—Steady at 44 per cent with no indication of a change for this week.

Detroit—Slight upturn results in a gain of 1 point to 48 per cent. One producer operated four furnaces all last week, the other had six on until Tuesday, added one then and took off two Friday.

New England—Unchanged at 27 per cent with the same rate scheduled for this week.

Central eastern seaboard—No perceptible change in production is noted, the rate remaining at 30 per cent. One interest will operate a second furnace the next few weeks to build up ingot stocks.

Cleveland—Operations continued steady last week at 33 per cent. One open heath will be taken off.

Chicago—Declined half a point to 24.5 per cent, equaling the lowest of the year to date. Another blast furnace has been blown out, leaving 12 active out of 39.

St. Louis—Advance of 7 points raised the rate to 28 per cent.

Birmingham, Ala.—With 12 open hearths melting the rate remains at 61 per cent.

Buffalo — Addition of an open-hearth furnace last week raised output to 21 per cent, an increase of 2.5 per cent.

Youngstown, O.—Increase of 6 points to 29 per cent, with 29 open hearths and two bessemers active.

Canada's Steel Output Highest since 1918

■ Steel ingots and castings produced in Canada during 1937 totaled 1,401,011 gross tons, the highest record since 1918. It compares with 1,115,779 tons in 1936. Pig iron production for 1937 totaled 897,855 gross tons, the highest since 1929, and 32 per cent greater than in 1936 when the total was 678,231 tons. Ferroalloy production in 1937 was 75,288 tons, compared with 76,284 tons in 1936.

December production of steel ingots and castings totaled 98,334 tons, compared with 110,688 tons in November and 103,952 tons in December, 1936. Pig iron production in December was 81,032 tons, compared with 81,463 tons in November and 68,499 tons in December, 1936. Ferroalloy production in December was 5846 tons, in November 6302 tons and in December, 1936, 6775 tons.

District Steel Rates

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended Feb. 19	Change	Same week 1937	Same week 1936
Pittsburgh ..	29	— 2	86	39
Chicago	24.5	— 0.5	80.5	59
Eastern Pa...	30	None	56	37
Youngstown..	20	+ 6	80	65
Wheeling	44	None	80	84
Cleveland ...	33	None	79.5	66.5
Buffalo	21	+ 2.5	86	35
Birmingham..	61	None	77	66
New England.	27	None	86	75
Cincinnati ...	22	— 6	60	72
St. Louis.....	28	+ 7	82	†
Detroit	48	+ 1	94	94
Average....	31	+ 1	83	54.5

†Not reported.

Steel Men Study Export Program

■ SUBCOMMITTEES of the Steel Export association, New York, are considering a comprehensive export program in which producers of a wide variety of steel products may share.

As suggested by the European steel cartel's delegation on its recent visit (STEEL, Feb. 7, p. 26), the proposed program would bring in sellers of plates, shapes, bars, sheets, strip, hoops, bands and wire products, and some semifinished steel. To date only American producers of tin plate and pipe had figured in international arrangements.

While formulation of subcommittees' program has not progressed far enough to enable an accurate estimate of probable participation by American steel producers, steelmakers are viewing the foreign market with new interest.

Many complications in a wider export program are obvious. To allocate foreign sales of a wide range of products admittedly is a difficult task. Quotas probably would be based on 1936 shipments.

Flash! And Rail Ends Are Welded

■ Engineers for the London Passenger Transport board have built a mobile welding plant with which, they report, heaviest rails used in England may be welded in 3 minutes. The power-generating unit is mounted on one car; welding apparatus on another. Rails are fed in, gripped firmly by air-operated clamps. The operator then has only to press a button. Rail ends are brought together and separated automatically, creating an arc. Actual flashing time—in which the ends become sufficiently plastic for welding—is 10 seconds. See also STEEL, Nov. 1, 1937, p. 52. Wide World photo.

Shape Price Too High, Says Roosevelt; Take Peep at Payrolls and Earnings

■ A DIRECT charge that structural steel prices are too high was made by President Roosevelt in last Friday's press conference. Wholesale structural prices, based on 1929 as 100, fell to 80 during the early depression period, rose to 98 in 1934 and now are 120, according to the Chief Executive's charts.

Of commodity prices generally, the President said some are too high, others are too low. Industrial, agricultural and monetary policies of the government will be directed toward restoration of balance in the price structure and toward reversal of the deflationary trend of the past six months, he promised.

While the President was asserting structural shape prices were too high, steelmakers were reaffirming present prices through the second quarter.

Mr. Roosevelt's attack on steel prices follows publication of various factual surveys, findings of which indicate present prices are reasonable.

Among these are the American Iron and Steel institute's report that on the aggregate investment in the industry, the average return over the past ten years has been barely 3 per cent, and the industry has not averaged as much as 5 per cent over any protracted period for which there are reliable records; that profits in 1937 were less than one-third cent per pound.

Of wage rates, the President said the real answer to lower production costs is to be found in increased volume rather than in lower wages.

Although last year's steel ingot production was 9 per cent below 1929, steel's total payrolls were $976,000,000 in 1937, a new high, and 16 per cent higher than in 1929.

An average of 572,000 employes were on the industry's payrolls in 1937, 25 per cent more than in 1929 when 458,000 were employed, according to American Iron and Steel institute.

Steelworker's earnings per ton in the third quarter last year were $18.60, compared with $15 a ton in the fourth quarter, 1936. This advance in wages paid per ton was not accompanied by any gain in productivity per man.

LABOR

HOOK'S COMMITTEE URGES LABOR ACT AMENDMENTS

■ AMENDMENT of the labor relations act was recommended to President Roosevelt last week by the industrial relations committee of the national business advisory council, headed by Charles R. Hook, president, American Rolling Mill Co.

Amendments suggested: Neither the act nor its administration shall favor any particular form of bona fide labor organization.

Employes shall be free in self organization and collective bargaining from interference, restraint or coercion from any source.

Any party to a labor dispute shall be able to invoke the services of the law.

The functions of fact finding, prosecution and judicial decision shall be separate and not combined in a single agency.

The rights and obligations of employes and employers and their representatives or organizations shall be more clearly defined by law and made less subject to definition at the discretion of the board.

THREE UNIONS REPRESENT ALLIS-CHALMERS WORKERS

The national labor relations board has certified formally both AFL and CIO unions as well as an independent union as employes' bargaining agencies for Allis-Chalmers Mfg. Co., Milwaukee, workers.

Recently the board ruled elections should be held to determine proper bargaining agencies for firemen and oilers, maintenance electricians, draftsmen and technical employes, and production workers, exclusive of office help.

Elections were held and the board has certified the results as follows: AFL, electrical workers, oilers and firemen; CIO, production employes; independent union, engineers and draftsmen.

DENIES AGREEMENT BETWEEN GREAT LAKES STEEL, SWOC

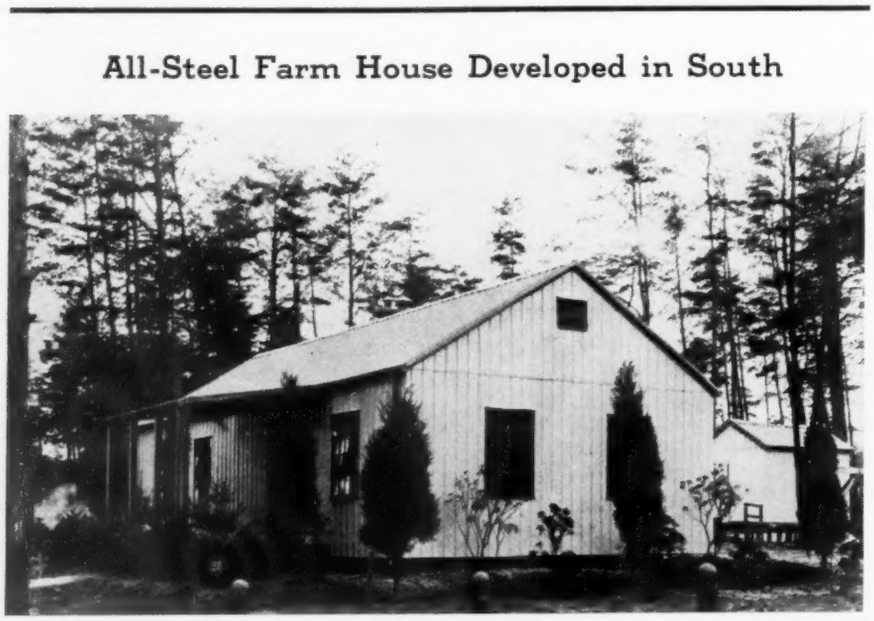
E. T. Weir, chairman, National Steel Corp., last week denied Great Lakes Steel Corp., a subsidiary, had entered "into an agreement of any kind with the Steel Workers Organizing committee." Mr. Weir's statement followed widespread reports that union officials had announced such an agreement.

MOVES TO RELIEVE MICHIGAN SKILLED LABOR SHORTAGE

Michigan's Governor Murphy last week appointed a state apprenticeship council to seek means of relieving a shortage of skilled labor that contrasts sharply with unemployment of unskilled labor. George A. Krogstad, head of the state department of labor and industry, was named chairman of the council which includes representatives of labor, employers and government.

Governor Murphy said he believed state and federal government should

All-Steel Farm House Developed in South



■ Permanent and inexpensive is this prefabricated steel farm house erected by the farm security administration at Greenbelt, Md. It was fabricated by the Decatur Iron & Steel Co., Decatur, Ala., of copper-bearing steel produced by Tennessee Coal, Iron & Railroad Co., Birmingham, Ala. Containing living room, three bedrooms and combination kitchen and dining room, the house with barn, poultry house and smokehouse can be delivered unassembled for approximately $2000

co-operate in training workers and has asked the labor department in Washington to prepare a bill dealing with apprenticeships.

LIVING COSTS DECLINE 1.2 PER CENT IN JANUARY

Wage earners' living costs in January were 1.2 per cent lower than in December, according to the National Industrial Conference board. Purchasing value of the dollar was 114.3 cents in January, compared with 112.9 cents in December, 115.1 cents in January, 1937, and 100 cents in 1923.

ADDS 1000 TO PAYROLL

Stewart-Warner Corp., Chicago, has added approximately 1000 employes to its payroll since Jan. 8. Production of automobile heaters this year will be double that of 1937, resulting in an increase of 200 to 300 employes for production of this product alone.

Carnegie-Illinois Plans Village of Steel Houses

■ Carnegie-Illinois Steel Corp. has arranged for construction of 300 to 500 houses near its new $60,000,000 Irvin works, Clairton, Pa. The company has granted an option on 175 acres overlooking the Monongahela river to a Philadelphia contracting company. Here, with the advice of steel company engineers, will be erected the small homes. At least 50 will be all-steel.

The houses will be leased or purchased by some of the 4000 workers to be employed at the plant when it begins operations, probably in midsummer.

Lists Points on Machine Buying

■ FEW users of machinery employ a comprehensive method to determine the economy of new equipment purchases. This fact was brought out in a talk on "Economics of Machine Purchases" presented by R. S. Perry, vice president, Ingersoll Milling Machine Co., Rockford, Ill., before the Industrial Management Society at Chicago, Feb. 17.

Mr. Perry cited results of an investigation of buying practices of his company's customers. This survey showed that 10 per cent followed no fixed plan in buying new machines; 60 per cent based their replacements on direct labor costs alone; 25 per cent predicated their replacements on direct labor and overhead; 5 per cent took into consideration not only direct labor and overhead, but other factors. Only three customers followed a formula.

There are only five reasons for buying machines, according to Mr. Perry. These are: To manufacture a new or changed product; old machines worn out; to increase production; to lower costs; to improve quality of product.

One or more of the foregoing factors may enter into the decision to acquire new equipment. To determine what economy will result from the replacement of old machines, however, involves numerous considerations and should not be based only on the more obvious cost elements, the speaker pointed out.

These considerations he indicated as follows: Cost of new equipment; interest on investment; delivery and installation charges; insurance; taxes; maintenance; depreciation; power consumption; supplies required (tools, lubricants, etc.); direct labor; salvage on old machine; unamortized value of equipment to be replaced; floor space; indirect labor; obsolescence of your own product; annual production estimate.

It was emphasized that no fixed formula nor exact method covering the economics of machine purchases will find equal application among all types of manufacturers, hence the importance of the above factors varies according to the nature of the individual machine user.

Each of these points deserves examination, however, to derive an accurate picture of what savings may be expected in machine replacement, he stated.

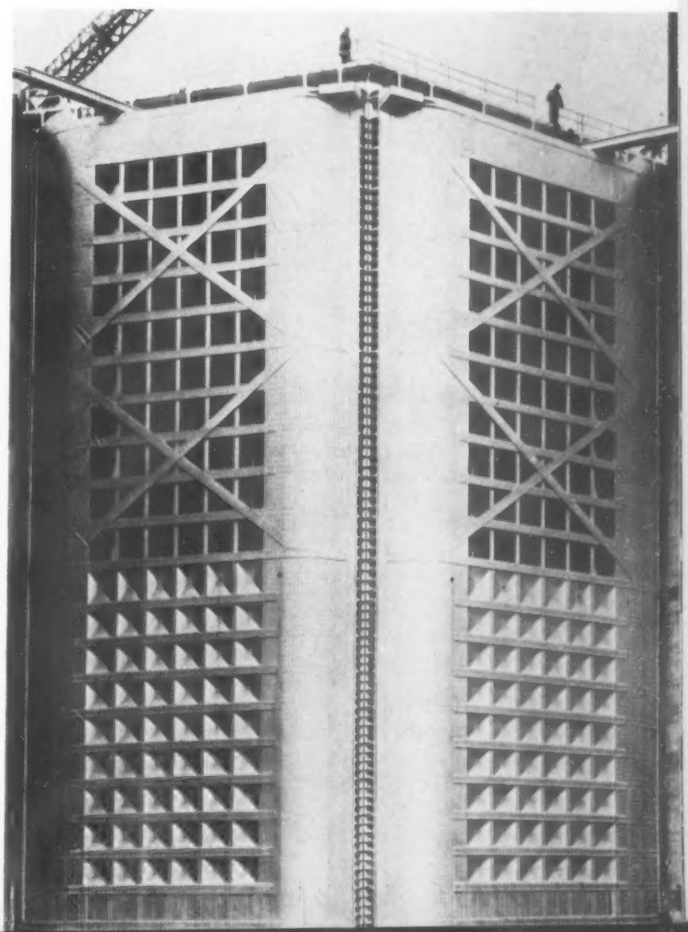
An interesting sidelight of Mr. Perry's talk concerned his company's selling practice during the last depression. With metalworking operations at a low ebb, volume was insufficient to demonstrate a saving through use of more modern machine tools. The opportunity was taken to demonstrate to prospective customers the reduction in costs that would accrue when volume reached a certain point, and when business recovery brought production to the determined level, sales efforts during the previous slack days resulted in numerous orders.

◆

1200-Ton Steel Gates, 100 Feet High, Close "Water-Tight"

■ These steel gates for lower locks in the ship canal at Bonneville dam, Washington, together weigh 1200 tons, are 100 feet high, yet they are built and hung so accurately that when closed they form a metal-to-metal, practically watertight union. Tallest in the world, they surpass by 18 feet those in the Miraflores lock, Panama canal. Both the Miraflores gates and these for Bonneville were fabricated by McClintic-Marshall, now a division of Bethlehem Steel Co.

Made of plates riveted to a framework, fabricated in sections, planed to precision measurements, they were assembled, checked for accuracy, dismantled and shipped recently from Pottstown, Pa., to Washington. Gates of the same design 46 feet high are used at the upper end of the locks. Locks are 76 feet wide. Each leaf of both upper and lower gates is about 44 feet wide.



MEN OF INDUSTRY

■ H. E. LEWIS, chairman of the board, Jones & Laughlin Steel Corp., Pittsburgh, has taken over the duties of president, following the resignation last week of S. E. Hackett as president, director and member of the executive committee.

Lewis M. Parsons, many years associated with the Bethlehem Steel Co., recently in charge of its Philadelphia sales office, has been elected a director and vice president in charge of sales of the Jones & Laughlin organization, effective March 1.

Mr. Hackett joined the company's Chicago sales office in 1916; in 1918 was named general sales manager; in 1923, vice president in charge of sales, and in 1934 was elected president.

Prior to his association with Jones & Laughlin, Mr. Lewis was chairman of the executive committee, Jeffrey Mfg. Co., Columbus, O., and before that had been executive vice president of Bethlehem Steel Co. He became chairman of the board of Jones & Laughlin in April, 1936.

♦

H. R. Currem has resigned as vice president of the Indiana Steel Products Co., Chicago.

♦

Earl C. Robertson has been elected vice president in charge of sales, Pittsburgh Coal Co., Pittsburgh, succeeding Hal E. Booth, resigned.

♦

J. M. Mercer has been elected president, Vento Steel Products Co. Inc., Muskegon, Mich. He succeeds H. R. Jensen who continues with the company as treasurer.

♦

Gilbert J. Kitching Jr. has become identified with Korbel Colwell Inc., New York, public relations counsel, and will specialize in financial and industrial work.

♦

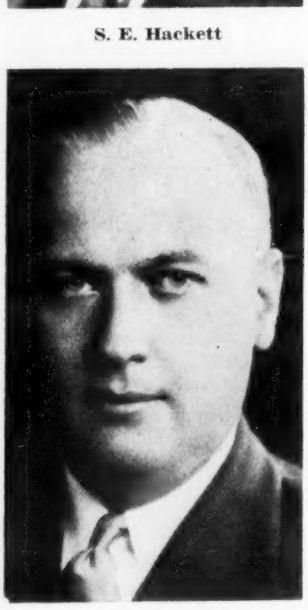
W. Skiba is now in charge of production for Scully-Jones & Co., Chicago. Other changes in personnel include: C. O. Watkins as sales manager; B. F. Rosenberg, plant superintendent, and P. Mitchell, in charge of advertising.

♦

James M. Nelson has retired as superintendent of the open hearth and bessemer furnaces at the Campbell, O., plant of Youngstown Sheet & Tube Co., Youngstown, O., after 40 years active service in the steel industry. During his career he held executive positions with Algoma Steel Corp. of Canada and the former Carnegie Steel Co. at Homestead, Pa. He went with Youngstown Sheet & Tube in 1925.

H. E. Lewis

S. E. Hackett



L. M. Parsons

♦

J. H. Hillman Jr. and Henry A. Roemer have been elected directors, Pittsburgh Steel Foundry Corp., Glassport, Pa., replacing F. W. Smith and F. A. McCune, resigned.

♦

Frank Theiss has resigned as superintendent, sheet galvanizing department, Continental Steel Corp., Kokomo, Ind., to become associated with the Bethlehem Steel Co., and will be located at Buffalo.

♦

J. Homer Platten, executive assistant to Charles J. Hardy, president, American Car & Foundry Co., New York, has also assumed the additional duties of comptroller, a newly created office.

♦

Janson Hurley has been appointed field sales manager in charge of the new field expansion program of Hurley Machine Co., Chicago. He will specialize in personnel organization and sales promotion work.

♦

Henry J. Wallace has been named sales manager of the Pittsburgh sales office of National Tube Co. Associated with National Tube for about ten years, he has been acting sales manager the past several months.

♦

Glenn H. Rearich, formerly superintendent of Babcock & Wilcox Tube Co.'s cold drawing and specialty departments, Beaver Falls, Pa., is now assistant general superintendent, Standard Tube Co., Detroit.

♦

J. B. Carey, formerly chief metallurgist, New Process Gear Corp., Syracuse, N. Y., has been appointed representative in northern Illinois, Wisconsin, Iowa and Minnesota for the A. F. Holden Co., New Haven, Conn.

♦

J. L. Stone, metallurgist at the Massillon, O., plant of Union Drawn Steel division of Republic Steel Corp., has been promoted to field metallurgist for the Hartford, Conn., sales district. His headquarters will be in Hartford.

♦

Paul C. Pocock, sales manager, Hydraulic Press Mfg. Co., Mount Gilead, O., sailed recently for England and other countries on the Continent, including Denmark, Sweden and France, where he will call on users of the company's presses and appoint distributors.

♦

G. R. Holmes, McLagon Foundry Co., New Haven, Conn., has been elected president of the Connecticut Foundrymen's association, to fill the unexpired term of C. W. Troth, who is locating in another state. Mr.

Holmes has been serving as treasurer.

♦

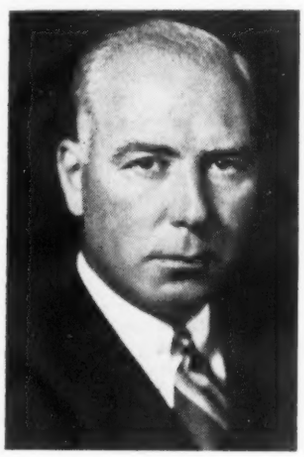
Norton T. Jones has become associated with the Van Dorn Iron Works Co., Cleveland, as executive vice president.

♦

Carl H. Beck, associated with the Westinghouse Air Brake Co. for more than 30 years, the past six years as eastern manager, has been promoted to general sales manager with headquarters at Wilmerding, Pa.

♦

P. B. Burtis has been appointed manager of sales in the Philadelphia district for Bethlehem Steel Co., succeeding L. M. Parsons, resigned. C. M. Mackall has been appointed assistant manager of sales for that



P. B. Burtis

district, succeeding Mr. Burtis. Mr. Burtis has been associated with Bethlehem many years and about two years ago was promoted to the post of assistant manager of sales at Philadelphia. Mr. Mackall has been affiliated with the company 12 years and goes to Philadelphia from the Detroit sales office.

♦

August J. Luedke has resigned as secretary-treasurer, Milcor Steel Co., Milwaukee. Elmer L. Lipman has been appointed to fill the unexpired term. Mr. Luedke joined the firm, then the Milwaukee Corrugating Co., in 1906.

♦

E. F. Smith, associated with the Chicago Vitreous Enamel Product Co., Cicero, Ill., in a sales and service capacity the past five years, has been promoted to district sales manager, covering the Michigan, northern Ohio and eastern Pennsylvania territory.

♦

W. E. Derwent, vice president, George D. Roper Corp., Rockford, Ill., has been elected a member of the board, Association of Gas Appliance and Equipment Manufacturers. He will serve as chairman of the association's domestic gas range division.

♦

R. W. Chandler for ten years associated with Graton & Knight Co., Worcester, Mass., as director of research and engineering, has resigned. He was active in forming the Power Transmission council and for several years served as chairman of the council's executive committee.

♦

J. K. B. Hare, associated with Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., since 1919, and manager of the company's Buffalo sales office since 1935, has been appointed central district manager, succeeding John Andrews Jr., who joins the headquarters staff of the company as assistant to the vice president in charge of sales.

♦

H. D. Foster, mechanical goods salesman in the Cleveland territory for Goodyear Tire & Rubber Co., Akron, O., since 1924, has been named manager of the company's newly created Cleveland district, which formerly was part of the Pittsburgh district. W. L. Clark succeeds Mr. Foster as Cleveland territory salesman.

♦

George A. Hileman, heretofore assistant superintendent of maintenance, Carnegie-Illinois Steel Corp., Vandergrift, Pa., has been promoted to superintendent of maintenance. He succeeds George Croft who has become associated with Blaw-Knox Co. George S. Zorn, general maintenance foreman, succeeds Mr. Hileman as assistant superintendent.

♦

C. C. Womack and R. H. McBride have been named plant industrial engineer, and assistant works auditor, respectively, at the Irvin works of Carnegie-Illinois Steel Corp., Clairton, Pa. E. A. Davis has been appointed plant engineer at the company's Wood works, McKeesport, Pa., and B. R. Richards, assistant works auditor at the Shenango works, New Castle, Pa.

♦

Leon A. Watts has been appointed to succeed the late Samuel Moore as general superintendent of Allis-Chalmers Mfg. Co.'s service and erecting department, Milwaukee. He joined the company in 1903 and in 1924 was stationed at Atlanta, Ga., as district superintendent of service and erection for the southeastern section. In 1935 he was transferred to Milwaukee as assistant to Mr. Moore.

♦

J. C. Lang, heretofore works manager, Automatic Business Machines Inc., Pittsburgh, has resigned to become chief engineer, Brook L. Jerrett & Co., Pittsburgh, industrial engineer. At one time Mr. Lang was associated with the National Cash Register Co., Dayton, O., and with the Dalton division of Remington Rand Inc., Norwood, O., as designing engineer. He also was one of the organizers of the Brulan Engineering Co., Cincinnati.

♦

R. F. Harrington, for the past 15 years metallurgist, Hunt-Spiller Mfg. Corp., Boston, has been named foundry superintendent and chief metallurgist. A. S. Wright, assistant metallurgist, succeeds Mr. Harrington as metallurgist. A. H. Lindsay, associated with the company for 32 years as a molder, molding foreman and general foreman of foundry operations, has become assistant foundry superintendent. Joseph Goostray, mechanical engineer, has been made mechanical superintendent in charge of maintenance and

C. M. Mackall

operation. He is succeeded in his former post by H. E. Barber.

♦

Gerald D. Howk has been appointed mill representative in the Cincinnati territory for Ludlum Steel Co., Watervliet, N. Y. His headquarters will be in the offices of Julius Uihlein & Co., 208 Elm street, Cincinnati. He will assist the Uihlein company in servicing Ludlum products regularly handled by it, and will also represent Ludlum on products not now covered by the Uihlein arrangement.

♦

T. W. Hager has been appointed vice president, Peter M. Frasse & Co. Inc., New York. In this post he will act as assistant to Lester Brion, president. A. B. Mead, vice president and manager at Philadelphia, has been transferred to New York as vice president and manager of New York sales. V. Hansel will assume the duties of assistant manager of New York sales. J. W. Patrick Jr. will be manager and H. R. Robson, assistant manager at Philadelphia.

♦

Richard Faull, mechanical engineer of the ore mines and quarries

division, Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., has been awarded a gold medal in recognition of 50 years of service with United States Steel Corp. subsidiaries. A native of London, England, Mr. Faull joined the Steel corporation as a machinist at the Soudan mine of the Minnesota Iron Co. in 1887. He went to Birmingham in 1901.

♦

James R. Bottoms, superintendent of Jones & Laughlin Steel Corp.'s cold strip mill, has resigned to become associated with Richard Thomas & Co. Ltd., Ebbw Vale, England, as manager of the hot and finishing mill operations. Previous to joining Jones & Laughlin in October, 1936, he was with the American Rolling Mill Co. at Ashland, Ky., from 1923 to 1930, when he became superintendent of processing at the Butler strip mill. He subsequently worked for Republic Steel Corp. and Wheeling Steel Corp.

♦

C. W. Heppenstall, 66, president and treasurer, Heppenstall Co., Pittsburgh, was guest of honor Feb. 12 at a party staged by employes of the company to celebrate his forty-fifth anniversary with the firm. President since 1920, Mr. Heppenstall is the fourth generation of his family to work in steel plants of England and America; five members of the fifth generation are now working for the company.

♦

Harry S. Bradley has been elected a vice president, Shenango Furnace Co., Pittsburgh. For some years Mr. Bradley has been a director of the company. He will continue as president of Shenango-Penn Mold Co., which office he has held since the company's formation.

H. M. Wilson and Frank E. Spencer have been elected directors, Snyder Mining Co., and Mr. Wilson has also been elected vice president of Shenango-Penn Mold Co.

♦

Ralph Johns has been appointed manager of sales, Sharpsville Boiler Works Co., Sharpsville, Pa. He has had extensive experience in the alloy and plate fabricating field. Additional appointments made by the company include Donald E. Jarman, as alloy design and welding engineer, covering the alloy and plate fabricating division, and Ralph J. Bens, New York; Robert Johns, Detroit; Emerson Mulford, Akron, O.; John J. Green, Hollidaysburg, Pa., and L. L. Guthrie, Pittsburgh, as district sales managers.

♦

Marshall Post, vice president, Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., and H. S. Washburn, president, Plainville Casting Co., Plainville, Conn., have been

James R. Bottoms

nominated for president and vice president, respectively, American Foundrymen's association, Chicago. Directors nominated to serve three years include: Hyman Bornstein, director of research, Deere & Co., Moline, Ill.; F. A. Lorenz Jr., vice president, American Steel Foundries, Chicago; D. O. Thomas, general manager, Saginaw Malleable Iron division, General Motors Corp., Saginaw, Mich.; G. A. Seyler, works manager, Lunkenheimer Co., Cincinnati, and H. S. Hersey, vice president, C. O. Bartlett & Snow Co., Cleveland.

DIED:

■ CHARLES ELI GREEN, 64, former president, American Can Co., at his home in Cranford, N. J., Feb. 10. He joined the New York office of American Can at the time of its organization in 1901. He was made auditor in 1907; became comptroller and a member of the board of directors in 1926; six years later was elected a vice president, and in 1936, president, which position he held only for a short time when he was forced to retire because of failing health.

Marshall Post

♦

Edward J. Thompson, 52, auditor, Detroit Seamless Tubes Co., Feb. 14 in Detroit.

♦

Frank Collins, executive vice president, National Supply Co., Toledo, O., Feb. 12.

♦

Dr. Theodore R. Harvey, 65, president, Beckley Perforating Co., Garwood, N. J., in that city, Feb. 1.

♦

H. L. DeVries, 53, plant superintendent, Metal Products Corp., Indianapolis, in Indianapolis, recently.

♦

V. S. Durbin, 53, president, Durbin Steel & Malleable Co., Evansville, Ind., in that city recently.

♦

Henry R. Fishel, 79, retired head of Fishel & Marks Co., Cleveland, iron and steel broker, in Cleveland, Feb. 10.

♦

Arthur B. Paull, 64, director of purchases for Beals, McCarthy & Rogers Inc., Buffalo, in St. Petersburg, Fla., Feb. 11.

♦

Enos Porter, 74, owner of Porter Steel Co., Shelbyville, Ind., manufacturer of wrought iron and ornamental products, in Shelbyville, recently.

♦

J. Emory Cook, identified with the steel industry for many years and former manager, Eastern Rolling Mill Co., Baltimore, in Baltimore, recently. He retired three years ago because of ill health.

♦

John P. Lundell, 81, pioneer industrialist of Rockford, Ill., at his home in that city, Feb. 12. He helped organize a number of companies in Rockford, including the Sundstrand Machine Tool Co.

♦

Miner S. Keeler, 75, Grand Rapids, Mich., industrialist, Feb. 9 in St. Petersburg, Fla. He was chairman of the Keeler Brass Co. which he organized in 1900, and also was principal owner of the Weber Knapp Co., Jamestown, N. Y., manufacturer of cabinet hardware.

♦

Francis Charles McMath, 71, internationally known civil engineer and for 50 years identified with railroad bridge construction in this country and Canada, in Detroit, Feb. 13. He began his career with Detroit Bridge & Iron Works, resigned in 1900 to organize the Canadian Bridge Co. Ltd., Walkerville, Ont. He was president of the latter until 1921, when he retired.

Ford Presents Figures To Show How Machinery Creates Employment

■ CRITICS of industry's use of labor saving machinery were answered last week by William J. Cameron, Ford public relations director, on the Ford Sunday evening radio hour.

Denying industrial machines cause unemployment, Mr. Cameron insisted such machinery creates jobs "from its very inception down to the last turn of its wheels." His talk was of special interest because he cited figures from Ford's experience to prove the point.

"At Dearborn we are working on an exhibit for the New York world's fair next year to visualize this ancient controversy between handwork and machine work as to their effect on employment," he said. "A very simple object has been chosen for the illustration—the inner shell of the hubcap of a Ford car.

"This article, made by machinery, costs 12-and-a-fraction cents. But the dies to shape it cost $13,328, and the automatic press to stamp it costs $30,770 — a machine costing $44,098 to make a 12-cent article. That is merely the cost of the press, it does not include the cost of factory space to house it, of generating the power to operate it, or expert service and replacements to maintain it.

"To pound out that inner shell by hand would cost only $24 for tools. So, in the Ford exhibit, an expert handworker will be installed, and a press will be installed beside him that will turn out 2160 of these shells in the time it takes him to make one. The machine method and the hand method will thus appear in dramatic contrast. Those who view the exhibit will naturally think of the effect of machinery on employment. And that is the intention. What is the answer?

Making Press Creates Jobs

"The first part of the answer is that machinery begins to create employment before ever it goes into production. Take this press. Divide its price by a day's wage of, say, $7—for every dollar of material cost is ultimately reducible to someone's work. At this rate the press and dies represent 6300 days' work, which, at five days a week, 52 weeks a year, amount to 24 years, two months and two weeks of work.

"You may divide that among as many men as you please, but a total of 24 years of employment at $7 a day has gone into that press and its equipment before it does a stroke of work. Whatever its after effect, you can see that the first effect of the machine is to create employment.

"Now we put this press into production; it turns out 2160 hubcap shells while a handworker is pounding out one. Would there be more jobs if only handworkers were employed?—for, really, it seems that this press, at this production, must be destroying 2160 possible jobs.

"Very well, let us consider making this article by hand. At first glance, it seems to offer an advantage. Equipping a man with hand tools at $24 would seem to be a great saving over a $44,000 press. But, to produce as many hubcaps by hand, and to equip 2160 men to do it, would cost $7742 more than the press.

Hand-Made Ford: $17,850

"At once the cost of producing that shell would be increased by 17½ per cent *for tools alone*. Then, there would have to be a factory to house those 2160 men, which at Ford standards would cost at least half a million dollars and about $38,000 a year to maintain, not including the cost of its two acres of land. A press requires 360 square feet of space; the handworkers with their benches would need 116,640 square feet of space.

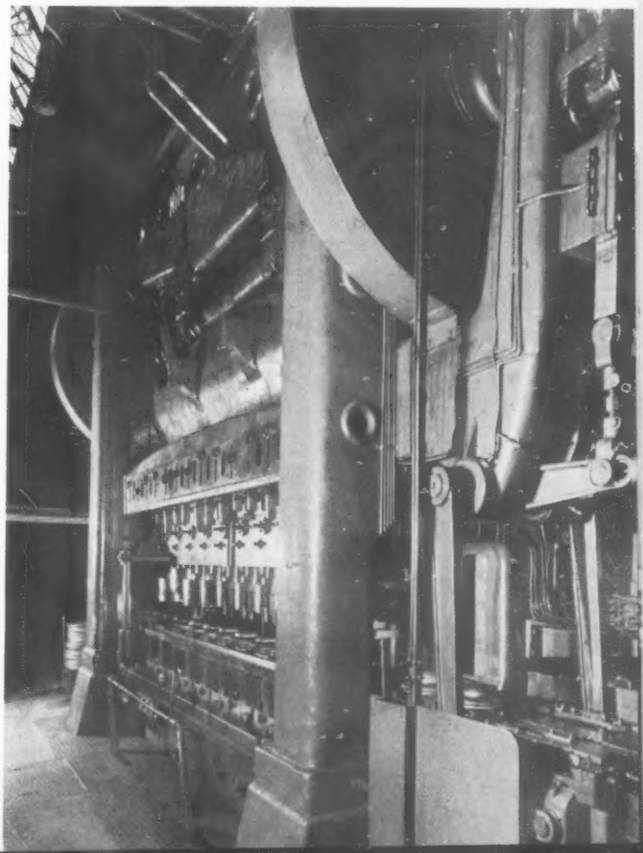
"But, let us say that for the sake of employment all this were done—you would expect to pay these men at least as much as men on the press are paid, wouldn't you?—for the handworker works *much* harder. In an 8-hour day, then, a man could pound out 2.7 hubcap shells. For the material used, and the day's wage of $7.20 now paid on that work, those shells would cost about $2.50 each. Pretty high for an article that can be made for 12 cents! Maybe you think you would be willing to pay that; 'in the interest of employing those men,' you say, 'I would pay that higher cost.' But would you?

"We can say quite definitely that you would not. For if this principle were followed throughout all the manufacture of an automobile you would not be buying a car at all. It is calculated that the cost of making a 1938 Ford car on this basis would be $17,850. And at such a price, not 50 cars a year would be sold. There would not be work for *one* of those 2160 men you are anxious about, nor for the 125,000 other men in the Ford industry alone. Without machinery there would be no automobile industry.

" 'Well,' you say, 'that would be bad. Could not you avoid that by paying for handwork just what it is worth?' Hardly, for under that arrangement a man on this hubcap shell job would earn about 18 cents a day — about what they pay in China.

"No, it will not work. Three million men are normally employed in making, selling and servicing cars, *because* with machinery cars can be produced at prices people can pay. And that, in turn, creates jobs at wages that enable people to buy. The cars, the jobs, the wages would not be there, were it not for machinery. From its very inception, down to the last turn of its wheels, *industrial machinery creates employment.*"

This Press Saves Time, Lowers Costs, Creates Jobs



■ Ford inner hubcap shells of cold-rolled low-carbon steel are formed in ten progressive dies of this large press. Flat disks are fed in at left, finished shells emerge at right. In separate equipment a stainless steel outer shell is pressed over inner shell to make the complete hubcap

Del Monte Group Maps Labor Plan

■ EQUALIZATION of the national labor relations act by a series of amendments was unanimously recommended by the conference of Iron, Steel and Allied Industries of California, Del Monte, Feb. 10-12.

Amendments urged include provisions that the labor relations board shall designate employe representatives only after conducting a secret ballot election and that no representative shall be certified unless at least 51 per cent of all eligible employes vote for that representative.

Definition of the following as unfair labor practices was recommended: Interference, restraint or coercion of employes, threatening injury to them, their families or property for the purpose of attempting to obtain membership in any labor organization;

Strikes, picketing or any concerted effort on part of employes for bargaining unless approved by a majority of employes in vote by secret ballot;

Any financial contribution for political purposes by any labor group unless approved by a majority of members;

Refusal by any union to furnish periodically to each member and to the labor relations board an accounting of money collected and spent.

Penalty suggested: Prohibiting a labor organization from collecting dues or assessments.

The group also went on record as opposed to proposed federal legislation to limit trains to 70 cars, and in favor of removing inequalities between operation of the California sales tax act and the state use tax act.

For papers presented and list of officers elected, see STEEL, Feb. 14, p. 17.

In conjunction with the conference was held the annual meeting of the Pacific Coast Fabricators association. Paul F. Gillespie, Judson-Pacific Co., San Francisco, was elected president, succeeding Reese H. Taylor, Consolidated Steel Corp., Los Angeles. B. J. Osborne, Moore Drydock Co., Oakland, Calif., was elected secretary-treasurer succeeding Mr. Gillespie. George H. Raitt, Steel Tank & Pipe Co., Berkeley, Calif.; Charles McGonigle, Poole & McGonigle, Portland, Oreg., and Paul Pigott, Pacific Car & Foundry Co., Seattle, Wash., were re-elected vice presidents.

Machine Tool Orders Continue To Decline

■ Downtrend in machine tool orders continued through January, according to the National Machine Tool Builders' association, Cleveland. The association's index, based on reports from 133 companies, is 118.4, compared with 142.7 for December, and 200.3 for January, 1937.

Both domestic and foreign orders dropped below the December volume, although foreign shipments held well within the higher range established in the last five months and accounted for 63 per cent of the total. Foreign shipments index stood at 75.2, compared with 89.2 in December.

Domestic shipments were 43.2, against 53.5 in December, and 232.5 in April, 1937, last year's high.

Music in New Demand on Steelmaking Technique

■ Steelmakers must have "ears for music" to meet some of the special demands made on their product. Recently Edgar Allen & Co. Ltd., Sheffield, England, received a complaint that triangles made from a certain heat of steel failed to yield the proper tone to harmonize with orchestral accompaniment.

Accordingly, technical experts were set to the task of determining what properties of steel controlled the tone, in order to provide a product that would avoid the discord.

Kropp Forge Co. Traces Hundred Years' Growth

■ Kropp Forge Co., 5301 West Roosevelt road, Chicago, has issued an illustrated booklet tracing the company's progress for 100 years. Starting in 1837 in a little waterwheel operated, single-hammer plant at Annefors, Sweden, the story is carried through various stages to dedication of the company's new shop in Chicago in 1937.

Illustrations show early equipment and methods contrasted with modern hammers and manufacturing procedure, with the intermediate steps. Copies may be obtained from the company's Chicago office as long as the limited edition lasts.

At Conference of Iron, Steel and Allied Industries of California in Del Monte

Pig Iron, Steel Capacity Gains

■ ANNUAL capacity for producing pig iron and ferroalloys was increased 1,100,000 gross tons to 50,698,400 tons during 1937, according to the American Iron and Steel institute.

Steel ingot producing capacity rose nearly 1,900,000 gross tons to a total of 71,065,540 tons. This was the first increase in ingot capacity since 1934 and the first for pig iron and ferroalloys since 1933.

Last year, for the first time since 1929, the industry's bessemer steel capacity showed a gain, the capacity at year end being 6,440,000 tons of ingots representing an increase of 115,000 tons over the year before.

Both open-hearth and electric furnace capacity likewise increased. At the close of 1937, open-hearth capacity was 63,524,336 gross tons a year, compared with 61,965,862 tons at the end of 1936. Electric furnace capacity was 1,092,604, against 943,252 the year before.

Crucible steel capacity declined by 2000 tons to 8580 tons.

Story of Westinghouse Put Into Book Form

■ The life and achievements of George Westinghouse, as told in a forum conducted by the American Society of Mechanical Engineers, have been published in an 80-page book, in observance of the 90th anniversary of his birth. Copies will be furnished to anyone interested, as long as the supply lasts, by Westinghouse Technical Press Service, East Pittsburgh, Pa.

The forum was participated in by Dr. James R. Angell, retiring president of Yale university; Paul D. Cravath, W. L. Batt and Ambrose Swasey, past presidents of the American Society of Mechanical Engineers; Ralph Budd, president of the Burlington lines; A. W. Berresford and L. B. Stilwell, past presidents of the American Institute of Electrical Engineers; Frank W. Smith, president of the Consolidated Edison Co.; S. M. Vauclain, chairman of the Baldwin Locomotive Works; and J. V. B. Duer, chief electrical engineer of the Pennsylvania railroad.

The volume is edited by Charles F. Scott, professor emeritus of electrical engineering at Yale. It tells the story of electricity, the air brake, the steam turbine, the improved electrical transformer, the air spring, the electric railway and scores of other inventions which owe their development to Mr. Westinghouse.

Pratt & Whitney Marks Worker's 70-Year Service

■ Pratt & Whitney division of Niles-Bement-Pond Co., Hartford, Conn., assembled 24 of its oldest workers Jan. 22 to honor Flavel W. Woodworth, aged 87, who became an employe at the age of 17. The 24 represented a total of 1001 years of service. Many other employes have service records of 10 to 40 years.

Clayton R. Burt, president, presented Mr. Woodworth a basket of flowers and a basket of fruit.

Tractor Sales Make New Record For Year

■ All records of the tractor industry, except the number and value sold for export, were broken in 1937, it is announced by the Farm Equipment institute, Chicago. This is based on census bureau figures.

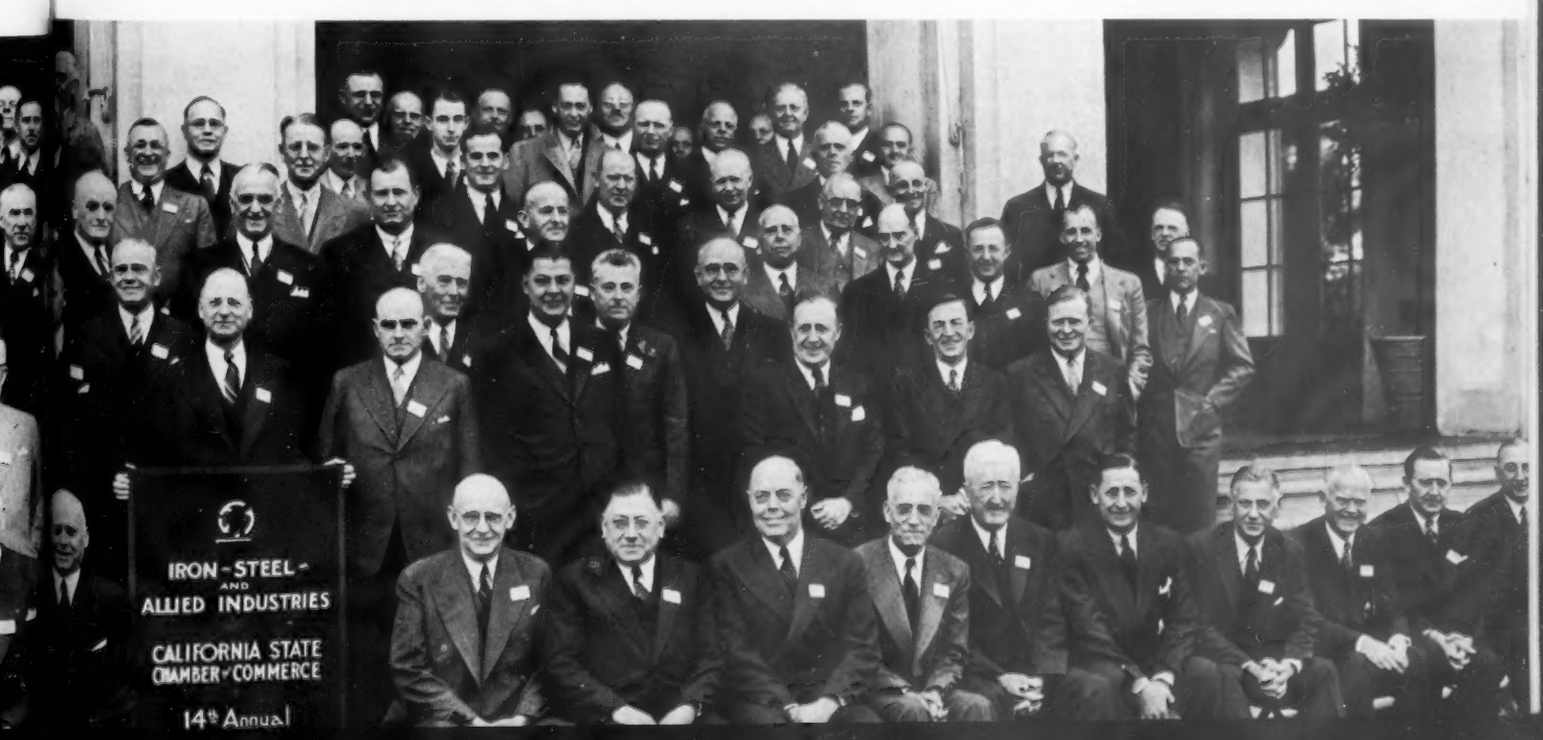
Tractors manufactured in 1937, except garden types, totaled 271,784, valued at $225,724,532. This compares with 221,446, valued at $175,403,940, in 1936. Sales in 1937 were 273,028, of which 236,616 were for use in the United States and 36,416 for export. In 1936 tractor sales were 198,793, of which 179,236 were for domestic use and 19,557 for export.

Export sales in 1937 were highest since 1930 but only 78.3 per cent of the 6-year average 1925-1930, which was 46,529. Owing to demand for larger types in 1937 the dollar volume of exports was 16.2 per cent higher than the 6-year average and was exceeded only by 1928, 1929 and 1930, when Canadian and Russian demand was heaviest.

The all-purpose type of wheel tractor accounted for 77.1 per cent of total sales in 1937 and 85.1 per cent of the domestic sales. Rubber tires were used on 45.5 per cent of the wheel tractors manufactured. Of the 27,130 sold for export only 20.3 per cent were so equipped.

Grain combines manufactured in 1937 numbered 29,403, valued at $21,283,984, an increase of 113 per cent in number and 103 per cent in value over 1936. Grain threshers produced last year totaled 4733, valued at $3,857,128, against 8622, valued at $7,106,081, in 1936.

■ For the second consecutive year employes of Columbia Steel Co.'s blast furnace and coke by-product plant at Provo, Utah, have been awarded the A. N. Diehl safety trophy given to the plant within the company which has the lowest percentage of "lost time" accidents. The Provo plant had a record of 1.47 accidents per million manhours worked.



MEETINGS

PLANNING EVENING FORUMS FOR A. S. T. E. CONVENTION

■ Technical sessions of the first annual convention of the American Society of Tool Engineers in Detroit, March 9-12, will be held evenings to leave days free for the Machine and Tool Progress exhibition. These sessions will be in the annex to Convention Hall which will house the show. Each session will be conducted as a forum and only one major topic will be discussed.

"Standards for Surface Quality" is the subject for the March 9 forum, with the introductory paper by Dr. E. J. Abbott, president, Physicists Research Co., Ann Arbor, Mich. H. T. Woolson, executive engineer, Chrysler Corp., Detroit, will discuss the subject from the point of view of the engineer; R. V. Hutchinson, designing engineer, Olds Motor Works, Lansing, Mich.; and F. J. Malone, assistant to president, Hercules Motors Corp., Canton, O., will consider it from the production man's point of view.

Topic for the March 10 forum is "Selecting and Buying Equipment," to be introduced by Edwin Johnson, manager of cost studies, Packard Motor Car Co., Detroit. The shop angle will be discussed by P. W. Brown, Wright Aeronautical Corp.; Buffalo; the purchasing viewpoint by Tom Higgins, purchasing agent, General Electric Co., Schenectady, N. Y.; and the supplier's angle by A. H. d'Arcambal, consulting metallurgist, Pratt & Whitney Co., Hartford, Conn. J. R. Weaver, director of equipment, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., will preside at both forums.

Ralph E. Flanders, president, Jones & Lamson Machine Co., Springfield, Vt., will address the dinner at Hotel Statler on the evening of March 11.

A feature of the exhibition will be the showing each afternoon of selected industrial and other motion pictures. Plant visits are being planned to many of Detroit's mass production plants.

ST. LOUIS FOUNDRYMEN SCHEDULE TOUR MEETING

St. Louis chapter of the American Foundrymen's association is scheduling a tour meeting at the President hotel, Kansas City, evening of March 25, to which foundrymen of the southwestern area are invited.

Speakers will be J. S. Vanick, International Nickel Co. Inc., New York, who will present a paper on alloy cast iron and cupola practice governing the production of such castings; and C. R. Culling, vice president, Carondelet Foundry Co., St. Louis, who will speak on the application of a foundry cost system.

Arrangements for the meeting are being made by L. J. Desparois, Pickands, Mather & Co., St. Louis, chairman of the chapter program committee; and R. O. Flanders, Blue Valley Foundry Co., Kansas City.

OPEN-HEARTH GROUP WILL FETE BLAST FURNACE MEN

Twenty-first national open-hearth conference of the open-hearth committee, American Institute of Mining and Metallurgical Engineers, will be held at the Statler hotel, Buffalo, April 20-22. The blast furnace committee of the institute will meet at the same time as guests of the open-hearth committee. L. F. Reinartz, works manager, American Rolling Mill Co., Middletown, O., is chairman of the committee, and Clyde E. Williams, director, Battelle Memorial institute, Columbus, O., is secretary.

CONSTRUCTION INSTITUTE SELECTS FRENCH LICK

American Institute of Steel Construction Inc. has decided to hold its 1938 convention in French Lick Springs, Ind., Oct. 10-14. The institute held its convention in that city in 1924.

CHEMICAL INDUSTRY GROUP TO CONVENE IN CANADA

Annual meeting of all sections of the Society of Chemical Industry will be held in Ottawa, Canada, June 20-22. A full program of events extending over the period June 17-July 1 has been arranged. The American section of the society will entertain members of the parent society at Niagara Falls, N. Y., June 25-27.

INVITE 1939 CERAMIC CONVENTION TO CHICAGO

Recently elected officers of the Chicago section, American Ceramic society, will lead a delegation to the society's national convention in New Orleans, March 27-April 2, to invite the 1939 convention to Chicago. Albert L. Vodicka, Aetna Porcelain Enameling Co., is chairman of the Chicago section for 1938; Rudyard Porter, Carnegie-Illinois Steel Corp., is vice chairman; and Rexford Newcomb Jr., Industrial Publications Inc., secretary-treasurer.

The section has appointed a board of advisors to the department of ceramic engineering, University of Illinois, Urbana, Ill., as follows: Joseph Wright, Owens-Illinois Glass Co.; William Schlake, president, Illinois Brick Co.; Fred L. Steinhoff, vice president, Industrial Publications Inc.; and Frank E. Hodek Jr., manager, General Porcelain Enameling & Mfg. Co.

Convention Calendar

Feb. 24—American Hot Dip Galvanizers' association. Annual meeting at William Penn hotel, Pittsburgh. Stuart J. Swensson, 903 American Bank building, Pittsburgh, is secretary.

Feb. 24-25—Southern Foundry Conference. Sixth annual conference of Birmingham chapter, American Foundrymen's association, and Birmingham section, American Society of Mechanical Engineers, at Hotel Tutweiler, Birmingham, Ala.

March 7-8—American Gas Association. Annual industrial gas sales conference of industrial gas section at William Penn hotel, Pittsburgh. Kurwin R. Boyes, 420 Lexington avenue, New York, is secretary.

March 8-10—British Institute of Metals. Thirtieth annual meeting at Institution of Mechanical Engineers, London. G. Shaw Scott, 36, Victoria street, Westminster, London, S.W. 1, is secretary.

March 9—American Society for Testing Materials. Regional meeting at Seneca hotel, Rochester, N. Y., in conjunction with spring group meetings of committees, March 7-11. C. L. Warwick, 260 South Broad street, Philadelphia, is secretary.

March 9-12—American Society of Tool Engineers. First national convention and exhibition at Convention Hall, Detroit. Ford R. Lamb, 5928 Second boulevard, Detroit, is executive secretary.

March 10-11—Society of Automotive Engineers. National aeronautic meeting at Mayflower hotel, Washington. John A. C. Warner, 29 West Thirty-ninth street, New York, is secretary and general manager.

March 14-15 — National Association of Waste Material Dealers. Annual meeting at Hotel Astor, New York. C. M. Haskins, 1109 Times building, New York, is secretary.

March 21-22—Liquefied Petroleum Gas association. Formerly National Bottled Gas association. First meeting in St. Louis. F. R. Fetherston, 11 West Forty-second street, New York, is secretary.

March 21-25—American Society for Metals. Third Western Metal congress and exposition at Pan-Pacific auditorium, Los Angeles. W. H. Eisenman, 7016 Euclid avenue, Cleveland, is secretary.

March 21-25—American Welding society. Regional meeting of Pacific Coast sections at Biltmore hotel, Los Angeles.

March 22-25—American Management association. Eighth packaging exposition and conference at the Palmer House, Chicago. Alvin E. Dodd, 330 West Forty-second street, New York, is president.

March 23-25—American Society of Mechanical Engineers. National spring meeting in Los Angeles. C. E. Davies, 29 West Thirty-ninth street, New York, is secretary.

March 25—Gray Iron Founders' society. Annual meeting at Statler hotel, Buffalo. W. W. Rose, 33 Public Square building, Cleveland, is executive vice president.

March 27—April 2—American Ceramic society. Annual convention at Roosevelt hotel, New Orleans. Ross C. Purdy, 2525 North High street, Columbus, O., is secretary.

March 28-30—Society of Automotive Engineers. National passenger car meeting at Hotel Statler, Detroit. John A. C. Warner, 29 West Thirty-ninth street, New York, is secretary and general manager.

Activities of Steel Users, Makers

■ WM. M. BAILEY CO., Pittsburgh, has re-acquired exclusive manufacturing rights to the American Electric Clay Gun under the Hopkins and Osolin patents. This equipment was originally marketed by the Bailey company but has been handled through different channels for some time.

♦

Black & Decker Mfg. Co., Towson, Md., has established a factory service branch in New Orleans, with headquarters at 630 Baronne street.

♦

J. R. Wark, Queen City Sand & Supply Co., Buffalo, has been appointed representative of the Steelblast Abrasives Co., Cleveland, in the vicinity of Buffalo, Rochester and Syracuse, N. Y.

♦

Harnischfeger Corp., Milwaukee, has appointed the Deaderick Machinery Co., Knoxville, Tenn., as representative for its line of welders and welding electrodes in eastern Tennessee.

♦

Fritz Bakery Equipment Inc., 342 North Water street, Milwaukee, maker of bread slicing machines, has changed its name to Bakery Machinery Corp. and will add other machinery to its line. Henry Fritz Sr. is president.

♦

Fourteen aerial ladder trucks for the New York city fire department will be built by Four Wheel Drive Auto Co. at its Clintonville, Wis., plant, involving $250,000 worth of four-wheel-drive trucks. This is a duplicate of the order for 12 received in 1936.

♦

Dravo Corp., with yards at Pittsburgh and Wilmington, Del., reports having launched last year the second greatest tonnage of vessels of any builder in the United States, including builders of deep-sea vessels. Although second in tonnage, Dravo launched 95 vessels, a larger number than any other yard. The gross tonnage was 41,728.

♦

Thomas Grate Bar Co., Birmingham, Ala., organized in 1910, has changed its name to Thomas Foundries Inc. The company will be operated by the same management, with no changes in personnel except for additions to the organization necessary to produce various high-grade cast iron products. E. A. Thomas is president and W. D. Webster, secretary-treasurer.

♦

Morton L. Pereira has taken over the business of Frank D. Chase Inc., Chicago, architect and engineer. Affiliated with the firm for 18 years, serving as vice president for over ten years, Mr. Pereira has associated with him members of the original organization and will function as Morton L. Pereira & Associates, with headquarters at 100 West Monroe street.

♦

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has reorganized its manufacturing facilities at Bloomfield, N. J., to form the special products division, under the management of H. J. Hoffman. This will embrace all phases of design, manufacture and sale of electronic tubes, in addition to continuing production of radio transmitting and X-ray tubes and special ultraviolet devices.

♦

Pioneer Engineering & Mfg. Co. Inc., Detroit, manufacturer of coolant and lubricant pumps for industrial use, has appointed the Willis J. Stutson Co., Chicago, as exclusive representative in the Chicago and northern Illinois district.

♦

Union Pacific railroad, Chicago, has resumed its car building program with reopening, after a 30-day layoff, of its Omaha, Grand Island and Portland, Oreg., shops. Total of 1700 cars are to be completed out of an original 2600 cars planned last October, and 400 employes will be kept busy until early summer.

♦

Development of plastics since invention of bakelite in 1907 will be depicted in a series of exhibits in the museum of science and industry, Rockefeller Center, New York, during March. Later the exhibits will be taken on a two-month city-to-city tour through New Jersey, then installed in Franklin institute, Philadelphia for the remainder of the year.

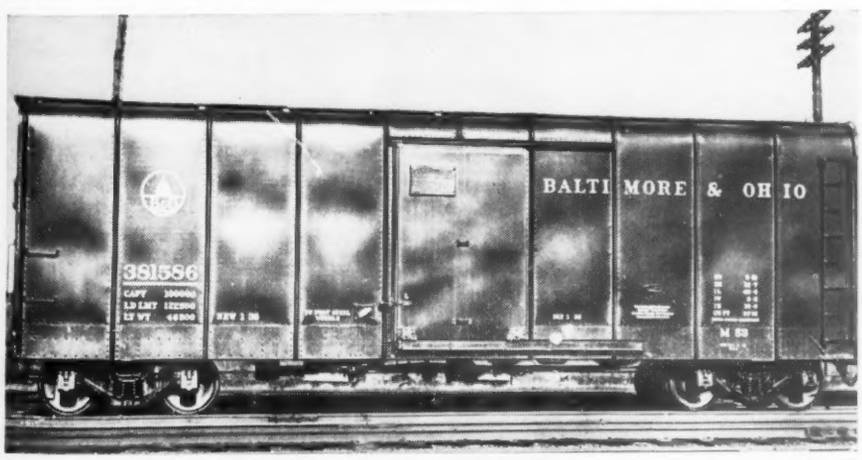
♦

Contracts for the cargo discharge and circulating pumps for a second 18,500-ton welded tanker now under construction for the Atlantic Refining Co. at the Sun shipyards, Chester, Pa., have been awarded to Worthington Pump & Machinery Corp., Harrison, N. J. The three 300-horsepower discharge pumps will have a combined capacity of 630,000 gallons per hour and the main and auxiliary circulating pumps will have a capacity of 522,000 gallons an hour.

♦

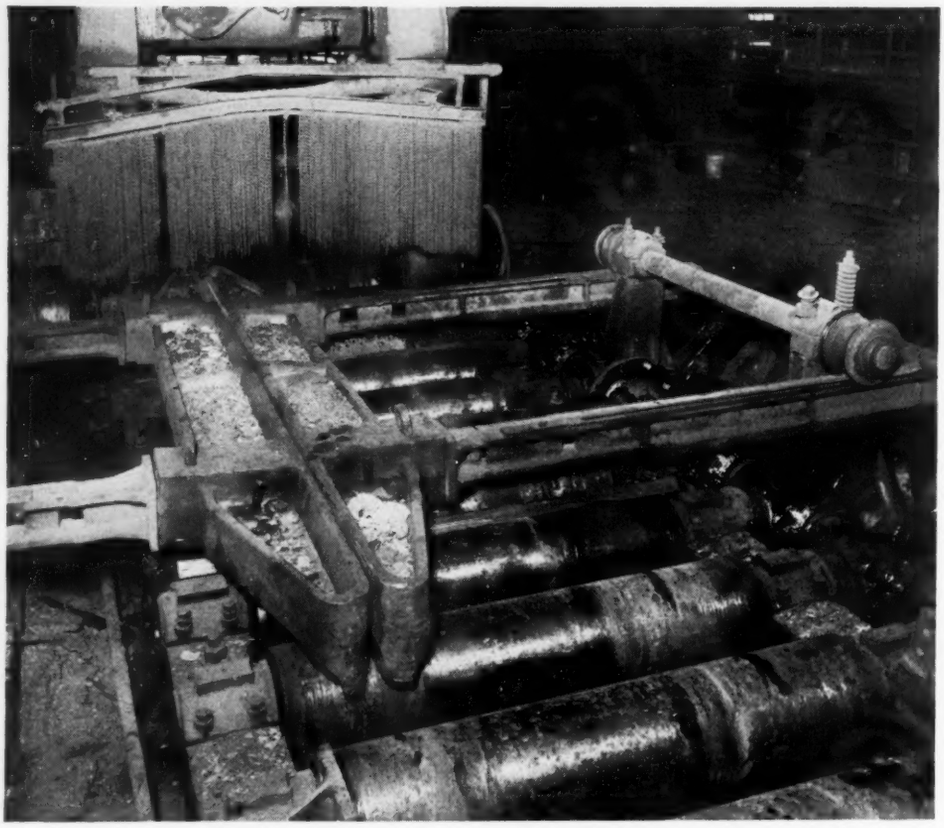
E. I. du Pont de Nemours & Co., Wilmington, Del., has formed an electroplating chemicals division, to correlate various manufacturing departments. Headed by J. C. Pickard, until recently West Coast manager, R. & H. Chemicals department, Pacific division, the new division has as its aim a unified position from which to service the trade, providing technical assistance. The division will handle all du Pont products having a place in the electroplating field, particularly materials made by Grasselli and the R. & H. Chemicals departments. Associated with Mr. Pickard is C. M. Hoff as assistant manager, formerly of the plating division of Grasselli chemicals department.

Streamlined Freight Cars Save Coal



■ Greater capacity and less wind resistance give more economical operation in these "wagon top" freight cars, 500 of which have been built in recent months by the Baltimore & Ohio railroad. Side and top plates of the M 53 type, shown above, are riveted; in another type, M 15, they are electric welded. Carrying capacity is 50 tons in 3716 cubic feet, compared with 40 tons in 2810 cubic feet in the conventional type of wood box car. Acme photo

Allegheny Steel Knows Their Many Advantages



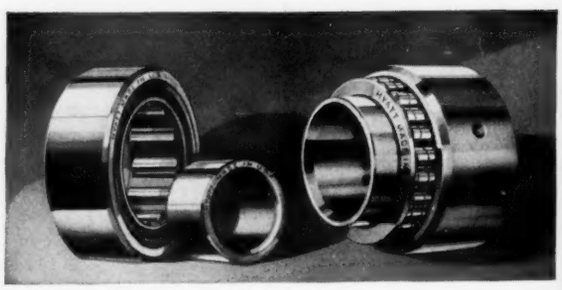
A "close up" of the main table rolls of the **ALLEGHENY 34" BLOOMING MILL** in which Hyatt Roller Bearings have served so long and so well.

One of the first Anti-Friction Bearing Applications in Blooming Mills was made by Allegheny — with HYATTS, of course

More than 15 years ago Hyatt Roller Bearings were applied to the 34" Blooming Mill tables at Allegheny Steel and these same Hyatt-equipped tables have been in continuous operation ever since. A real testimonial to the endurance and stamina of Hyatts in tough applications.

In addition to these tables the majority of the other equipment, both at Brackenridge and West Leechburg, runs on Hyatts. The 100" plate mill tilting tables, the coilers, the motors, the ingot cars, etc. — all have their quota of Hyatt Roller Bearings for more tonnage at less operating and maintenance cost.

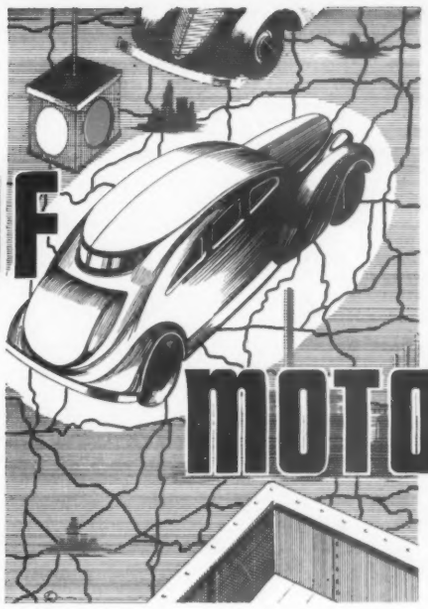
No wonder we point with pride to this Hyatt blooming mill table application—the forerunner of the many thousands of Hyatts which serve the entire steel industry today.



Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey. Hyatt Roller Bearing Sales Company, Chicago and Pittsburgh.

HYATT
ROLLER BEARINGS

MIRRORS OF MOTORDOM



DETROIT

■ ASK the average automobile executive his opinion on whether and when business is going to improve, and he will probably recite the story of the farmer who, in the midst of a heavy downpour, was asked whether he thought it would ever stop raining. The farmer took a squint at the sky, spat, and observed, "It always has."

And so it is in automobiles. Business is bad, production is down, employment is off; but conditions always have improved in the past, and there is no reason to suspect a reversal of form. Hence most manufacturers are confident cars will begin to move in good volume in the spring months, and in the meantime are going over their own organizations to check up on weak spots and do a little repair work here and there.

Shun Price Predictions

Executives naturally are noncommittal on prices, and they would not own up to the possibility of a price cut, even if it were only an hour away. They point to the fact wage and material costs have increased 13 per cent since last year, while prices lifted only about 8 per cent. They emphasize the inadvisability of tampering with prices before any reduction in inventory costs has been effected.

While it is true commodity costs have been reduced sharply in recent months, still there has not been sufficient time to translate these reductions into inventories. Rubber, cotton, wool, tin and lead are among the automotive commodities which are at considerably lower levels today than at the same time last year. Iron and steel, of course, do not move with the same flexibility as these other materials and today probably average somewhat higher than last year.

Wages continue at higher levels

BY A. H. ALLEN
Detroit Editor, STEEL

than last year and most of the reductions which have appeared recently in wage payments are in the form of time off rather than any cut in rates.

The adjustment in cold-rolled sheet steel lowers the cost of body steel about $1.20 per car, since about 600 pounds of body sheets are used per vehicle. Probability of further adjustments in steel prices is remote at present, but a removal of doubt on this score would be helpful.

Granted that much of the speculation on reducing car prices represents wishful thinking, nevertheless it appears reasonable to expect some developments in the matter of prices, especially as the first quarter of the year draws to a close.

■ RECRIMINATIONS against manufacturers on the score of their relations with dealers have been

Checking Chevrolet Axles for Deflection

■ **Twelve gages measure every possible deflection in a Chevrolet rear axle under load in the laboratory. Weight is hung on end of driveshaft corresponding to a maximum load on the axle during service. All movements or deflections of the driveshaft, pinion and ring gears, and axle shafts are read simultaneously**

numerous ever since production slumped, most of these charges being at variance with the actual facts. However, they have persuaded manufacturers to take a serious look at the matter of dealer relations to determine the cause of these unjust charges.

Last week Chrysler announced new dealer contracts which continue provisions already in force, but which clarify and expand the terms of agreements with dealers in language which has been leached of all involved legal terminology and hocus-pocus. The new contracts are masterpieces of plain talking and cover all phases of the manufacturer's relations with his retail outlets.

The effort has been made to curb "bootlegging" of cars and cross selling among dealers, assessing penalties of $75 per car on dealers found to be flagrant violators of these contract provisions. The corporation stresses the fact it does not seek to set itself up as a policeman for its entire dealer organization, preferring to suggest principles of operation which will be fair to all dealers and to the public.

Gears Output to Orders

Among other phases of the new agreement is the stipulation that Chrysler will reimburse all distributors with respect to stocks of current model cars in the latters' hands, should any price reduction in current models be made. This represents no change in policy, but puts in print a factor which hitherto has been mutually understood.

Also clearly stated is the Chrysler policy of not scheduling cars for production until orders for them have been received from distributors. Of course, the company expects its distributors to keep ample stocks for display purposes, commensurate with the level of sales in the particular territory, but in no sense does the company seek to overload outlets with cars in periods of slack sales, and in fact has never followed this practice. Distributors do submit annual estimates of their prospective requirements, but as far as shipments are concerned, weekly orders are the sole factor regulating movement of new cars.

Another interesting paragraph from the new agreement is the following: "Chrysler may at any time discontinue any models; it may revise, change or modify their construction or classification; and all orders refer to models current at the time of the reception of such orders by Chrysler unless otherwise specified . . . Any action may be taken by Chrysler under the terms of this paragraph without notice, and without incurring any obligation to the distributor by reason of his previous purchases."

From early indications, it appears the new dealer agreement sets hitherto unapproached standards of compatibility and goodwill between dealers and manufacturer.

■ FURTHER evidences of a thaw in the used car market are received almost daily. Used car sales by Pontiac dealers in January approached 25,000, about 10 per cent ahead of December. Present supplies of used cars are said to represent a 40-day stock. Ratio of used car sales to new car sales in January was about 4 to 1, well above the normal proportion.

Cadillac also reports a sharp reduction in both unit stocks and dollar inventories of used cars in January. The month also was the second-best January ever experienced for retail deliveries of new Cadillac-La Salle models, 2089 cars being moved.

Buick dealers delivered 24,660 used cars in January, compared with 23,567 in the same month last year. Stocks at present are reported fewer than 3000 ahead of the same time last year.

Large number of used cars are being moved into western and southwestern states, it is understood, and temporarily, at least, some of these states are said to have lifted the bars on entrance of used cars for sale. Until recently some states made a practice of levying a certain amount against every car brought into the district for sale. Texas is reported to be absorbing used cars in important quantities.

Commenting on the size of the used car business, W. E. Holler, Chevrolet general sales manager, likens it to an industry located in the stores of the 60,000 automobile dealers in the country, with an average of five men each who receive the bulk of their wages from used car transactions—300,000 individuals in all.

The Cleveland distributor for Chrysler declares, "We have no used car problem due to the fact we have adjusted prices to present-day market conditions. There is an entirely new and optimistic tone among dealers in this territory. We feel the worst is over."

■ PURSE strings at Ford have been cut loose, and millions are pouring out for new equipment to be installed in the press, tool and die shops. Some 200 out of an eventual 400 presses have been placed among six suppliers of this type of equipment. Capacities range up to 1000 tons. Over three-quarters of a million dollars has been authorized for traveling cranes, mainly of 100-foot span and up to 90-ton capacity. Proposals call for the expenditure of about $250,000 for electric hoists. Meanwhile releases have been issued on large numbers of planers, milling machines, boring mills and other machinery for die-making purposes.

With characteristic flourish, this latest splurge of Ford buying practically knocks some of the equipment people off their feet. So extensive is the buying program that it will be weeks before it can be concluded, despite extra pressure being put on engineers and purchasing officials.

Fortunately, equipment interests are in a position to offer speedy deliveries on most needs, but it appears problematical whether the press shop will make its scheduled inauguration June 15.

■ SOME competent observers of the Detroit scene are convinced the next two or three years will see some intensive cultivation of the so-called small car market. All the leading producers are understood to have designs worked out for a small car in the $400 class; just when they will be introduced, if ever, is difficult to determine now, but it is a good bet that before long you will see some new activity in this field.

Automobile Production

Passenger Cars and Trucks—United States and Canada

By Department of Commerce

	1936	1937	1938
Jan.	377,244	399,634	*250,000
Feb.	300,810	383,698	.....
March	438,943	519,177	.....
April	527,625	553,415	.....
May	480,518	540,357	.....
June	469,368	521,139	.....
July	451,206	456,909	.....
Aug.	275,934	405,064	.....
Sept.	139,820	175,620	.....
Oct.	230,049	337,979	.....
Nov.	405,799	376,637	.....
Dec.	518,958	346,886	.....
Year	4,616,274	5,016,565	.....

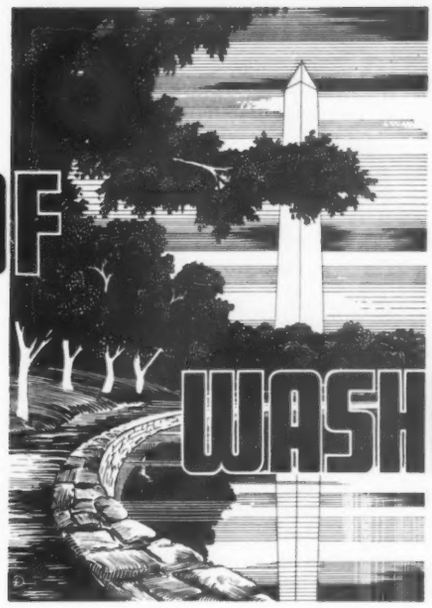
*Preliminary.

Week ended

Jan. 22	65,418
Jan. 29	59,365
Feb. 5	51,443
Feb. 12	57,810
Feb. 19	59,100

	Week ended Feb. 19	Feb. 12
General Motors	21,560	20,950
Chrysler	9,850	9,050
Ford	19,265	20,760
All others	8,425	7,050

WINDOWS OF WASHINGTON



WASHINGTON

■ MEMBERS of congress on both sides of the capitol are apparently disturbed over the wage-hour bill. While many of them feel that no further effort should be made to drive the measure through the house, they know the President has made up his mind some legislation along this line must be enacted before congress adjourns.

Although the President has made no official pronouncement other than to say that he wants action before adjournment, there is a general feeling that whatever he gets will be acceptable. Either he has made a deal with one or both of the labor leaders, or having set his mind on the fact that he wants some legislation, he is not willing to withdraw his former statement.

The story at this time is that efforts to push through wage-hour legislation will not be made until the closing hours of congress.

It will be recalled that the wage-hour bill has already passed the upper house, but it has been entirely inactive in the house committee on labor since the special session, when the house refused to accept the measure and sent it back for revision.

Mild Bill Is Expected

Friends of the wage-hour bill have expressed themselves hopeful of framing a measure which would be mild enough to pass the scrutiny of the rules committee of the house, yet strong enough to assure an effective compromise in conference with the senate.

It has to be borne in mind, however, that the rules committee will have the final say on whether the bill can go to the floor. Indications are there has not been much change in sentiment among members of the committee on this legislation, and there is every indication the bill will have to be innocuous to pass the committee. Indications are the bill will not be taken up for consideration by the house until after all regular departmental appropriation bills are out of the way.

BY L. M. LAMM
Washington Editor, STEEL

ASKS TRADE AGREEMENTS EXEMPT FERROMANGANESE

Two bills were introduced in congress last week dealing with manganese and the navy department asked for new bids on ferromanganese.

Representative Case, North Dakota, introduced a concurrent resolution in the house in which he called attention to the fact that manganese is essential to the production of steel and then resolved that: "It is the sense of the congress of the United States in the interest of national defense that the department of state should refrain from negotiating trade agreements with any nation further reducing the tariffs on manganese ores, manganese concentrates, or manganese alloys; that these items should not be included in proposed trade agreements with the United Kingdom, Canada, or any other country; and, further, that the full duties on manganese ores, manganese concentrates, and manganese alloys as provided in the tariff act of 1930 should be restored by proper notice from the department of state to the governments of Brazil and Canada, with whom present agreements have reduced those duties, and to all nations receiving most-favored-nation treatment pursuant to those agreements."

The resolution was referred to the ways and means committee of the house.

Senator Miller, Arkansas, introduced a bill in the upper house "to provide for the common defense by acquiring domestically mined manganese ore and concentrates essential to the manufacture of supplies for the armed forces in time of emergency." The bill was referred to the senate committee on military affairs.

The navy department announced that it would receive bids March 18 for 3000 to 14,000 tons of ferromanganese. It will be recalled that bids were received Oct. 9 for both manganese ore and ferromanganese. The bids were finally rejected on the protest of domestic manganese producers because they claimed they were not able to bid because of specifications. They believe that under the new specifications they can bid for supplying the ore for the ferromanganese.

RICHBERG HAS PLAN FOR BUSINESS CO-OPERATION

Donald R. Richberg who, as pointed out a number of times recently, is trying to persuade the President to be more lenient with industry, made a speech to trade association executives here last week in which he discussed in detail closer co-operation between business and the government.

One of the interesting points was the suggestion that a permanent bureau of industrial economics be established in the department of commerce, similar to the bureau of agricultural economics in the department of agriculture, which is apparently doing a constructive job for the farmers.

It is rather curious that Richberg should have gone into this matter so fully, in view of the fact that commerce department officials for the past couple of years have tried to get money from congress for this purpose.

"Quite obviously," Richberg told the trade association executives, "we must improve this industrial system of ours. We cannot tolerate its alternating booms and depressions.

We cannot tolerate its inability to give reasonably secure and continuous employment to our working population. But we are never going to improve our condition, we will only make things worse, by destroying the ability of business men to do a better job and by trying to run a competitive system by political regulation.

"How are we going to start in the right direction? First, by focusing public opinion on the need for co-operation; second, by educating ourselves as to the problem and practical methods of solution.

"Take an analogy from agriculture. You have seen an actual grappling with agricultural needs; the building of a co-operative mechanism and the achievement of practical results. The bureau of agricultural economics has played a large part in this public service.

"Apply the same principle and establish and implement a permanent bureau of industrial economics in the department of commerce, a government agency of co-operation entirely separate from agencies of prosecution and punishment.

"Then proceed with voluntary co-operative efforts to develop industrial planning and measures of a self-disciplined competition. In order to do this, there must be freedom from criminal penalties and punishments for efforts undertaken under public scrutiny and in the public interest.

Clear Tracks for Business

"But administration sanction cannot be given to trade agreements and co-operation unless there is a clear basis for administrative judgment. It should be made plain that this does not mean relaxing legal prohibitions of monopolistic or unfair practices. On the contrary, public officials must be guided by law, not by personal judgment.

"The present state of the law is a pervading uncertainty as to judicial construction or jury verdicts. Therefore, the first need is a clearer statement of the law. Then co-operation can be undertaken free from threats of criminal prosecution and triple damages which are now all too often weapons of racketeers and unscrupulous competitors.

"The bureau of industrial economics should be under supervision of an administrator, perhaps designated as under secretary of commerce. Give him the aid of a policy making economic council. When specific trade agreements or association plans are presented, let there be a special advisory committee, representative of management, labor and other group interests directly concerned.

"Require written approval of co-operative programs in finding of fact and conclusions. Provide for continuing public supervision so as to make sure that the public interest is protected.

"This may seem elaborate machinery with little driving power. It is not strong-armed government regulation. But the NRA showed us we have not yet determined our objectives or methods, so as to insure general understanding and support, which is the essential basis for the exercise of any compulsion against even a vicious minority.

"One besetting sin of reform is the attempt to build Rome in a day. We hold back from experimentation until the need is so great that drastic action is demanded. Then we hurl ourselves at the problem in desperate haste, trying to build a new machine without any clear notion of what we really want to do, or how it can be accomplished.

"I am pleading for a new approach in developing, first, understanding of our needs and then trying out voluntary efforts to meet them; and gradually working out a technique of proved efficiency."

SENATOR SEEKS PURGE OF LABOR RELATIONS BOARD

With many other members of congress Senator Bridges, New Hampshire, feels definitely that the labor relations board act should be revised.

The senator leans over backward in his attitude toward the board because he claims that the administration by the board "is one of the basic causes for the present depression." He insists that the act be amended during the present session.

He is urging the "purging of the present board of persons who believe they are crusaders and economic dictators first, and arbitrators afterwards," and he says "loopholes in the labor relations act whereby labor in the form of organized groups was given the right to make certain demands which were denied industry and thus violated the spirit of fair play have enabled a biased and prejudiced labor board to make a mockery of a worthy and noble act."

SEEK PLANS FOR LOANS TO SMALL BUSINESS

President Roosevelt and some of his close personal advisors have taken up study of the possibility of loans to the little business man.

While the administration was supposed to have started looking into this matter some weeks ago, there is no doubt it was speeded up by the attitude of the small business men, as expressed at the recent Roper conference.

However, need for government assistance in providing industrial loans for little business is much clearer than the methods of accomplishing this end. There is a definite feeling the small business men have convinced the administration, as a result of certain new deal legislation, they find it extremely difficult, if not impossible, to obtain moderate sums for plant expansion.

In the first place, the undistributed profits tax has made it uneconomic to plow earned profits back into the business, as formerly done. Revision of the undistributed profits tax will relieve small business of that burden, but it will not fully meet this problem of getting funds for plant expansion, it was contended by some delegates at the Roper conference.

WOULD BUY FIVE YEARS' SUPPLY ESSENTIAL METALS

Representative Barry, New York, speaking before the house last week regarding essential raw materials, called attention to the fact that the United States is the only great power that posseses within its borders a sufficiency of certain essentials, among which he named iron, iron ore, coal and machinery.

He called attention to the fact that the United States possesses sufficient of 10 of the 18 necessary raw materials, so that this country has to look abroad for only eight. Included in these he mentioned tin and manganese.

"In view of threatening conditions abroad," he said, "I feel that we should obtain now a supply of these necessary raw materials so that we can get along for approximately five years without depending on supplies from any foreign nation.

"In the interest of peace and in order to keep us free of any entangling alliance, I urge congress to enact legislation establishing a commission to ascertain the amount and cost of these raw materials necessary to keep us self-sufficient for at least five years. The cost of acquiring and storing these raw materials would be cheap, whatever it would be, if it kept us out of war."

PWA BUYS MUCH MACHINERY

A four-year analysis has just been completed by the bureau of labor statistics of the department of labor in connection with machinery purchased by PWA. The figures show that almost $300,000,000 has been spent by the government through PWA with the machinery industry, out of a total of more than $1,500,000,000 expended for materials during that time.

Foundry and machine shop products accounted for orders totaling more than $150,000,000, while more than $73,000,000 was spent for electrical machinery and supplies. The bureau survey shows also that some $26,000,000 was expended for engines, turbines and tractors.

Country Must Be Sold Truth that General Prosperity Hinges on Well-Being of Industry

■ FOR several years STEEL has laid emphasis on the need for greater recognition of the importance of public relations. This editorial policy has been dictated by the realization that the American scheme of life was in danger because of a general misunderstanding of the place of private initiative and the profit system in this country. This misunderstanding is traceable directly to past failure on the part of industry to tell its story to the man-in-the-street. Because of this misunderstanding astute politicians have been able to profit by attacking industry.

Many recent manifestations denote that industrial leaders now generally recognize the importance of public relations. More industrial leaders now are telling industry's story to the public. An interesting indicator of this trend is the result of a survey recently completed by *Industrial Marketing* in an effort to determine what responsibilities management now is placing on the shoulders of advertising managers.

Public Relations Assume Large Place in Management Program

Dominating the answers received from business executives as to how industrial advertising managers might be more useful to their companies, and in which direction lies their greatest opportunity for development, according to that publication, the matter of public relations appears uppermost in the minds of these men.

Following are excerpts from typical replies:

D. E. Jenkins, assistant to president, Carnegie-Illinois Steel Corp., Pittsburgh: "The importance of public and industrial relations activities in modern business is being recognized more each day by successful business men, and their importance will increase with time."

S. Duncan Black, president, Black & Decker Mfg. Co., Towson, Md.: "I am of the opinion that the industrial advertising and sales promotion executives of the future will have to pay more attention to public and industrial relations and market and sales research than in the past."

B. B. Williams, president, Cooper-Bessemer Co., Mt. Vernon, O.: "American industry has done a grand job of selling its products but has neglected the extremely important one of selling its policies to its employes and the general public. As a result the politicians have blamed industry for the depression and gotten away with it."

Sincerity and Policies Winning Confidence Will Bring Results

Being a new venture for most industrial leaders, the development of effective public relations technique will require careful study. As was pointed out at the recent meeting of the Iron, Steel and Allied Industries of California, at Del Monte, resolutions hatched out by committees and adopted at conventions do not influence the man-in-the-street. It is not sufficient for industry to drive against its critics.

The task is one of informing the public that general prosperity and well-being depend on prosperity and well-being of industry and commerce. The task best can be accomplished by democratizing the function of public relations so that every competent industrialist, of his own initiative, becomes a self-appointed ambassador for the common cause.

Propaganda has no proper place in this effort. To be effective, the campaign must be formulated in an attitude of entire sincerity, backed by company policies which win respect from both employes and public. From work so conceived great results can be expected in the future.

THE BUSINESS

Gain in Automobile Output Buoys Activity Index

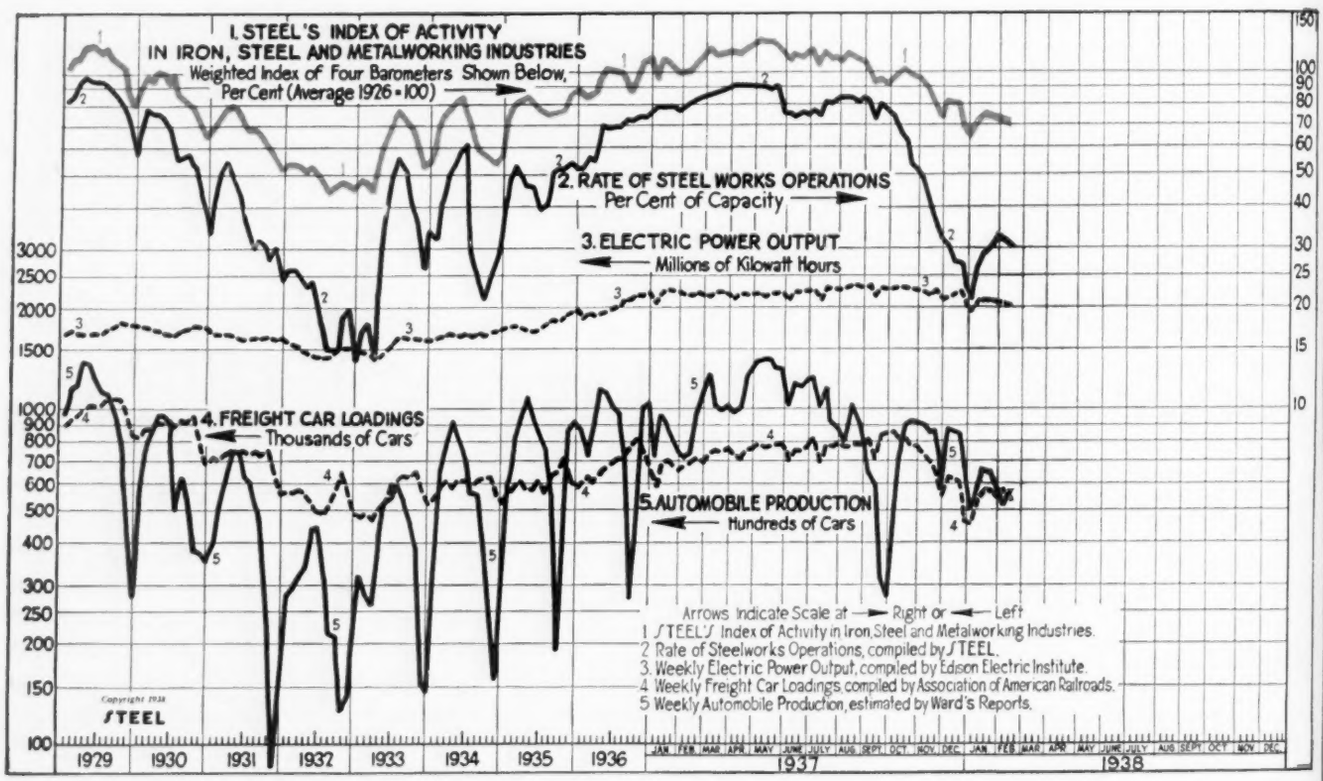
■ THE rate of STEEL's index of activity in the iron, steel and metalworking industries since the middle of January has moved within a relatively narrow range following moderate recovery from the year-end lows. Business has reached the midway point of February without exhibiting signs of a new demand in the volume expected at the first of the year.

A substantial gain was registered in the week ended Feb. 12 in automobile production. However, electric power output and steelworks operations suffered further mild setbacks since the week ended Jan. 15.

Freight car loadings also receded from 564,740 cars in the week ended Feb. 5 to approximately 544,000 cars in the week ended Feb. 12.

The net result of the fluctuations of these four barometers upon STEEL's index of industrial activity was a gain from 70.9 in the week ended Feb. 5 to 71.2 in the week ended Feb. 12. The rate of steelworks operations continues downward, but a reversal in this movement is anticipated soon. The automobile situation is slightly better with the used car market clearing up somewhat. Railroad freight traffic is erratic.

In short, activity is marking time, awaiting new impulses before developing a positive trend.


1. STEEL'S INDEX OF ACTIVITY
IN IRON, STEEL AND METALWORKING INDUSTRIES
Weighted Index of Four Barometers Shown Below,
Per Cent (Average 1926 • 100)
2. RATE OF STEEL WORKS OPERATIONS
Per Cent of Capacity
3. ELECTRIC POWER OUTPUT
Millions of Kilowatt Hours
4. FREIGHT CAR LOADINGS
Thousands of Cars
5. AUTOMOBILE PRODUCTION
Hundreds of Cars
Arrows Indicate Scale at → Right or ← Left
1 STEEL'S Index of Activity in Iron, Steel and Metalworking Industries.
2 Rate of Steelworks Operations, compiled by STEEL.
3 Weekly Electric Power Output, compiled by Edison Electric Institute.
4 Weekly Freight Car Loadings, compiled by Association of American Railroads.
5 Weekly Automobile Production, estimated by Ward's Reports.
Copyright 1938
STEEL
1929 1930 1931 1932 1933 1934 1935 1936
1937
1938

STEEL'S index of activity gained 0.3 points to 71.2 in the week ending Feb. 12:

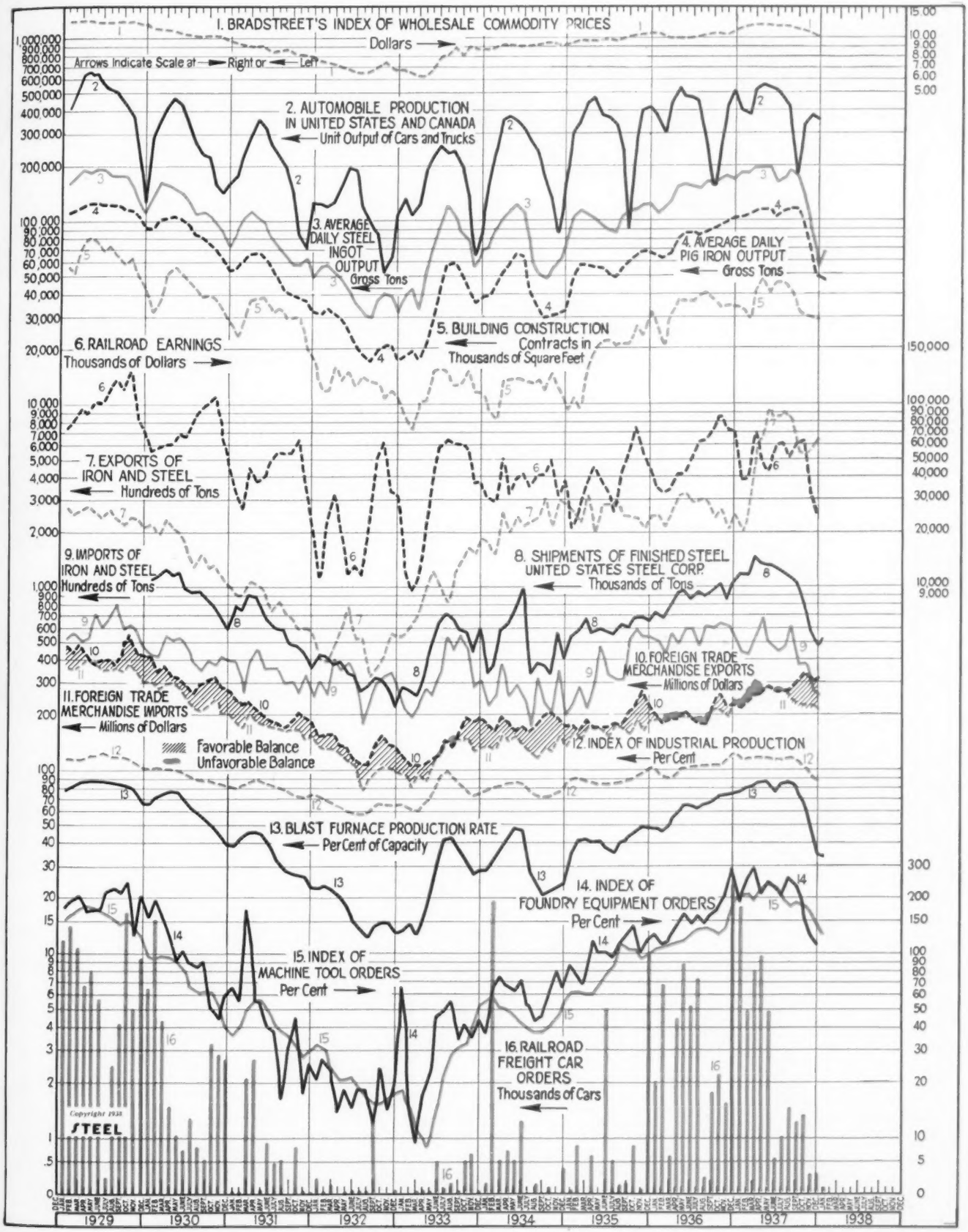
Week ending	STEEL'S Index of Activity Index No. 1937	1936	Steelworks Operating Rate Per Cent 1937	1936	Electric Power Output Million KWH 1937	1936	Freight Car Loadings 1937	1936	Weekly Auto Output 1937	1936
Nov. 13	86.5	107.9	39.0	74.0	2,176	2,169	689,614	784,672	85,325	104,248
Nov. 20	84.9	109.9	35.0	74.5	2,224	2,196	647,251	790,500	85,757	110,160
Nov. 27	72.7	105.2	31.5	75.5	2,065	2,133	558,627	679,984	58,955	104,283
Dec. 4	81.5	108.4	30.5	76.5	2,152	2,243	623,337	744,957	86,173	100,395
Dec. 11	80.5	113.9	27.0	77.5	2,196	2,278	622,131	738,747	85,765	119,455
Dec. 18	79.4	114.8	27.0	79.5	2,202	2,274	603,292	729,696	82,025	121,038
Dec. 25	69.5	93.3	23.0	68.0	2,085	2,080	460,367	562,218	67,230	79,019
	1938	**1937**	**1938**	**1937**	**1938**	**1937**	**1938**	**1937**	**1938**	**1937**
Jan. 1	62.7	96.6	21.0	79.0	1,998	2,069	457,359	587,953	49,550	71,800
Jan. 8	70.1	107.8	26.0	79.5	2,139	2,244	552,314	698,529	54,084	96,780
Jan. 15	74.4	106.7	29.0	79.0	2,115	2,264	580,600	700,238	65,735	91,685
Jan. 22	74.7	104.0	30.5	80.0	2,108	2,256	570,333	670,376	65,418	81,395
Jan. 29	73.8	99.6	33.0	76.0	2,098	2,214	553,176	659,790	59,365	74,148
Feb. 5	70.9†	100.8	31.0	79.5	2,082	2,201	564,740†	675,026	51,443	72,295
Feb. 12	71.2*	101.9	30.0	81.0	2,052	2,199	543,844*	691,618	57,810	72,850

*Preliminary. †Revised.

STEEL TREND

Key:	Dec. 1937	Key:	Dec. 1937	Key:	Dec. 1937	Key:	Dec. 1937
1	$9.77	5	28,718,400	9	25,792	13	34.2†
2	346,886	6	$25,971,525†	10	$319,756,000	14	111.2
3	66,626†	7	626,418	11	$208,863,000	15	129.6†
4	46,426†	8	518,322†	12	84	16	25†

†January.



Key: 1. Bradstreets' Index (Average of Wholesale Commodity Prices. 2. Automobile Production in United States and Canada, compiled by U. S. Department of Commerce. 3. Average Daily Steel Ingot Output, compiled by American Iron and Steel Institute. 4. Average Daily Pig Iron Output, compiled by STEEL. 5. Building Construction, Contract Awards in 37 States, compiled by F. W. Dodge Corp. 6. Railroad Earnings, Net Operating Income for Class I Roads, compiled by Bureau of Railroad Economics. 7 and 9. Iron and Steel Foreign Trade, reported by Bureau of Foreign and Domestic Commerce. 8. Shipments of Finished Steel, United States Steel Corp. 10 and 11. Foreign Trade, Value of Exports and Imports, reported by Bureau of Foreign and Domestic Commerce. 12. Index of Industrial Production (adjusted for seasonal variation; average 1923-25=100) computed by Federal Reserve Board. 13. Blast Furnace Production Rate, compiled by STEEL. 14. Index of Foundry Equipment Orders (Average 1922-24=100), compiled by American Foundry Equipment association. 15. Index of Machine Tool Orders (Three-month moving average; average monthly shipments 1926=100), compiled by National Machine Tool Builders association. 16. Railroad Freight Car Orders, compiled by STEEL.

Spot WELDING P

■ INNOVATIONS in welding technique in the automobile industry are frequent, and with each succeeding new model some variation in manufacturing procedure is devised to reduce assembly costs, to speed up the process, or to minimize manual effort.

One of the latest and most spectacular of these developments is in connection with fabrication of welded steel underbodies or floor panels for Packard cars. Formerly the assembly and welding of reinforcing to these panels was a complicated and unwieldy task, since each underbody comprises three large stampings, two side sills, 18 brackets and bracing strips, all spot welded into an assembly 11 feet 5 inches in length and 4 feet 4 inches wide, embodying some 600 spot welds.

Former method of assemblying this unit involved the use of conventional assembly fixtures and portable hand-operated welding guns, or deep throated pedestal welders. This necessitated an extensive area of manufacturing space and a good-size force of operators and helpers.

Contrast this setup with the present installation, in which three multiple spot welding machines complete the entire assembly, with its 600 welds, at the rate of approximately 45 per hour, with a minimum of handling of the pieces required between the loading station of the first machine and the conveyor which removes the completed underbody to the assembly line.

Three separate hydromatic welding machines are placed in tandem for straight-line production. The machines are large enough to provide room for an operator's gangway on each side of the welding units, so that operators can walk right through the machine itself to load and unload the parts. Fig. 1 shows this arrangement, operators being in process of placing a stamped panel on the bed of the first welding machine. The floor plan, Fig. 7, shows the layout of machines, stock and conveyors.

The machines are an adaptation of the press principle, comprising a bed on which the various pieces to be welded to the panel are spotted over hard alloy copper electrodes or buttons located in a large water-cooled copper casting so as to be properly positioned under the descending welding guns in the head or upper electrode. In operation, the head, with its cluster of welding guns, is lowered onto the panel and through three hydromatic units the guns are actuated in series of 12,

Fig. 1 (left)—Start of the multiple spot welding operations, with workmen lifting a panel onto the bed of the welding machine. Fig. 2 (right)—Close-up of upper and lower electrodes, showing cableless guns mounted on upper electrode. Note water cooling facilities for lower electrode

PACKARD UNDERFRAMES

four from each unit. After all the guns in the head have completed their welding cycles, the head raises and the panel is moved on to the second machine.

Going back in the process a bit, the first step is to load all brackets and bracing strips in proper position for welding on the under side of the forward panel or stamping. Then, two operators place the panel in position, step back and place both hands on controls which actuate the head. Thus four controls must be actuated before the head will lower, this constituting a safety precaution to protect operators. The head lowers and exerts a 20-ton clamping pressure on the panel through hydraulic cylinders, before the welding is started. This pressure is transmitted through a series of hold-down pads on the head.

As mentioned before, the welding guns are indexed in series of 12. In the first machine there are 228 spots to be welded and the entire welding cycle is completed in 21 seconds, after which the carriage raises automatically and locks in the raised position. Four hydraulic cylinders at the corners actuate this head. The operators unload the piece to a conveyor slide over which it is moved to the second machine.

Fig. 2 shows the second machine in the raised position before the

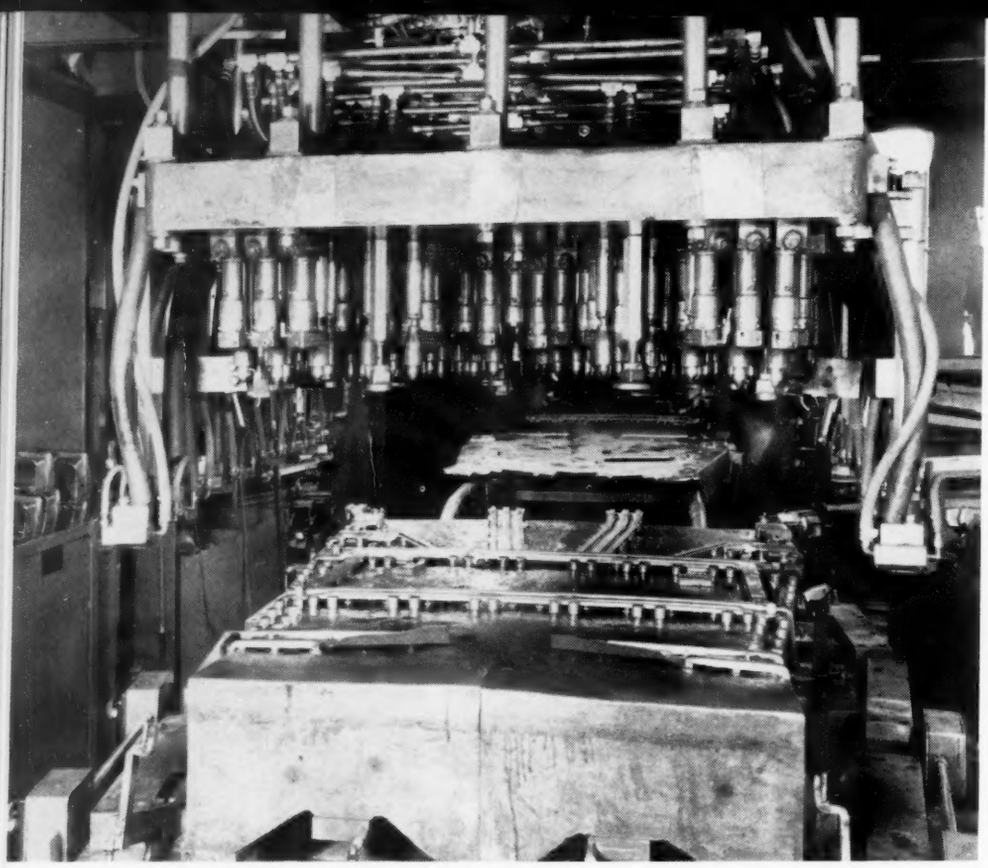


Fig. 3—Reinforcing strips and cross sills are placed in position on contact pads before panel is placed over them for spot welding

panel has been placed over the lower electrode contacts. It gives an idea of the location and arrangement of the various spot welds made in this step. Note the close grouping of welding guns in the head, each accurately spotted over one of the buttons or contacts in the bed.

Fig. 3 shows the same machine from the opposite side, with the various braces and reinforcing strips in position for welding to the underside of the panel. Fig. 5 shows the panel in position and the head lowering for the welding cycle.

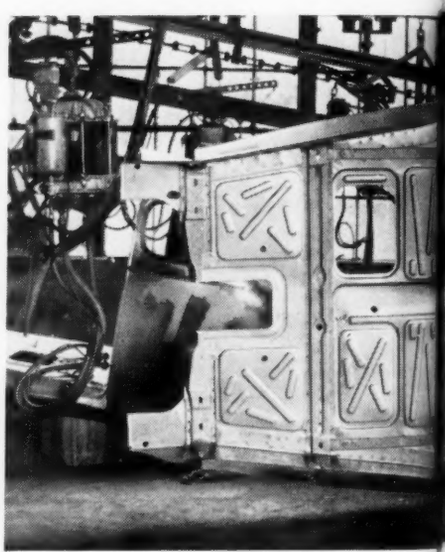
Because of the proximity and large number of spots to be welded on the forward part of the underbody, the second machine is a duplicate of the first with the exception that it welds some 222 additional spots in alternate positions to the spots on the first machine. In both cases, the machines have three complete welding units utilizing six 150-kilovolt-ampere transformers each.

Following completion of the 450 spot welds on the first two machines, the forward panel of the underbody is moved forward to the third welder for the third and final operation of overlapping and joining to the rear panel stamping with its necessary brackets and rear compartment floor pan. This operation is shown in Fig. 4, while a completed underbody hung on the conveyor for transfer to the assembly line is shown in Fig. 6.

The steel underbody assembly comprises toe risers, front and rear floor pans, rear seat pan, rear compartment floor pan and cross sill reinforcements, seat reinforcements, side sills, door pillar reinforcements and some other smaller attachments. All parts are steel stampings of 18-gage metal or heavier.

As has been indicated, control of the welding unit is entirely automatic after the operators depress the starting buttons. The upper or movable carriage carries what is termed the upper base electrode on which are mounted the patented cableless hydromatic welding guns. Their positions may be varied to accommodate changes in design. The use of the cableless gun eliminates individual shunts, cables, bus bar supports and other incidentals required by former types of hydromatic welders.

The hydromatic unit, in brief, comprises an air cylinder actuating a piston which in turn applies hydraulic pressure to a distributing disk in which a delivery port is spotted over successive distributing tubes each leading to four of the welding guns, providing about 1000 pounds point pressure at the guns. As this pressure builds up, the welding current is applied, and through a hydraulic pressure switch the pressure is released, whereupon a pawl, through spring action, moves



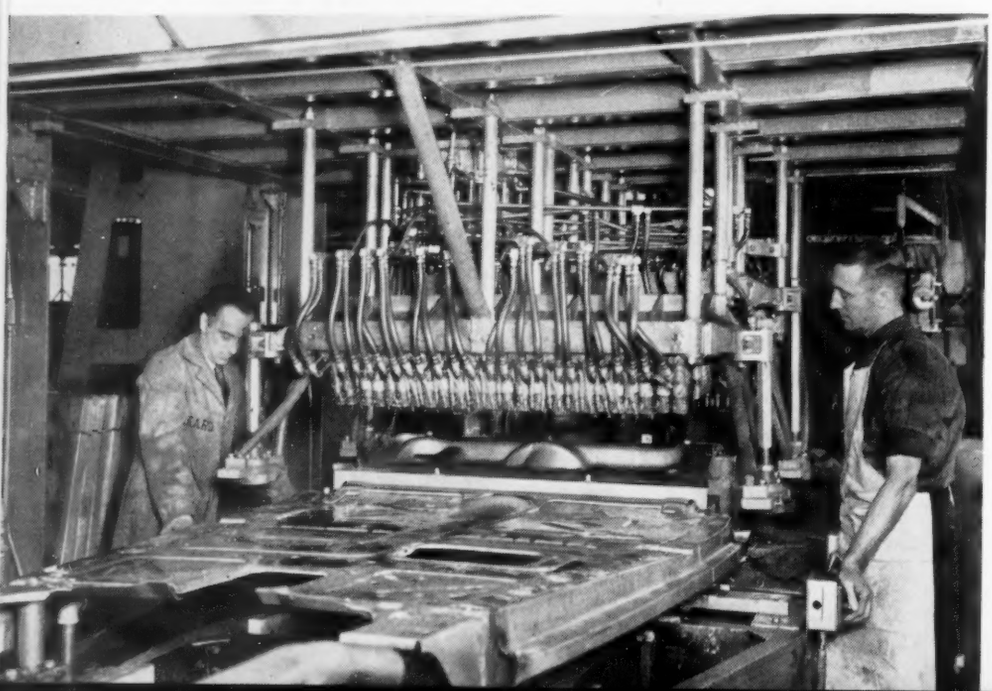


Fig. 4—Third machine which spot welds floor pan to rear compartment pan. The two operators must actuate controls with both hands before the welding cycle can be started

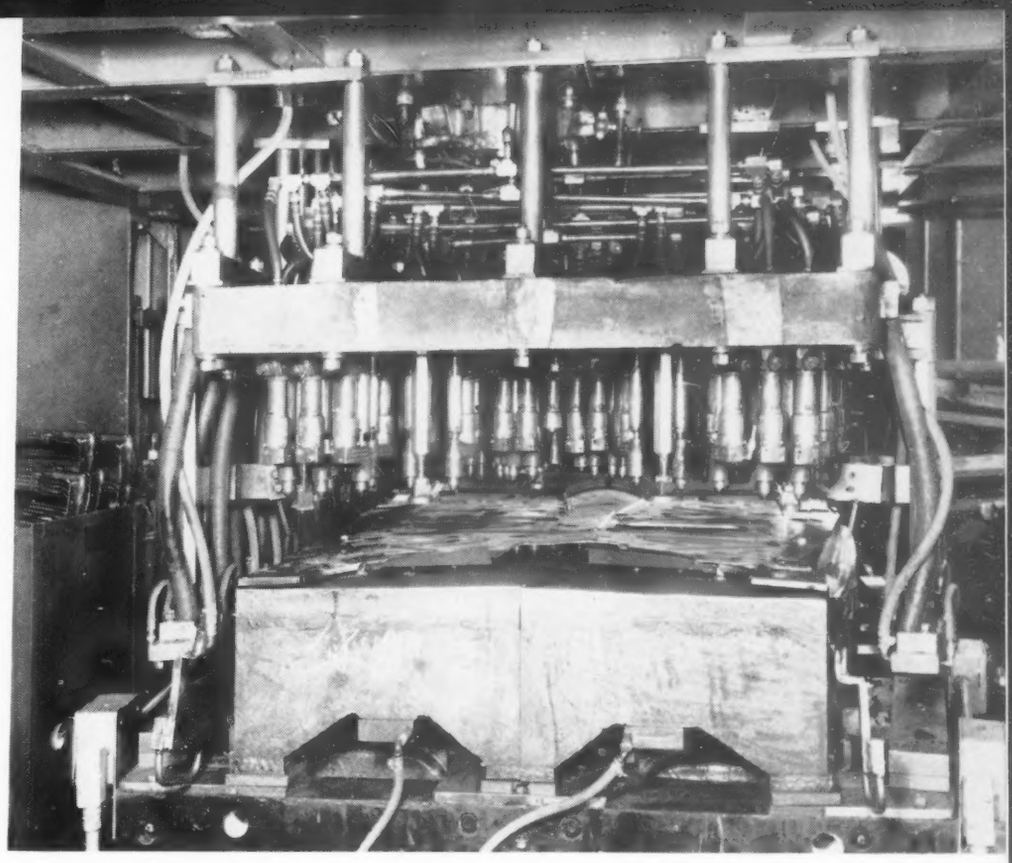


Fig. 5—Upper electrode here is lowering into the welding position. Panel is held firmly by four hold-down cylinders, two of which are shown in the foreground

the distributing disk around one notch and the cycle is repeated. Oil pressure on the disk seals inactive parts in the distributing casting. Advantage of this system is that any standard type of weld timer may be used in connection with current application. Total travel of the guns as they go through a welding cycle is only about ⅜-inch.

Welding guns, transformers and both upper and lower electrode castings are water cooled. The lower electrode, with its replaceable copper alloy buttons, is mounted on a hardwood base to eliminate inductance losses from the transformers which are mounted directly beneath it.

One side of the transformer secondary is connected to the lower electrode and the other side to a common bus bar. Welding current is carried to the top electrode through adjustable floating contact pads. Top electrode is actually made of three insulated sections.

The frame of the machine itself is of arc welded steel construction, so designed that it can be dismantled quickly for removal and re-installation.

Weld timers and contactors are easily accessible in the columns of the machine. The hydraulic power unit actuating the movable carriage is located outside the machine where it can be serviced readily.

Referring again to the operation of the welding guns, four guns are actuated by each port of the hydromatic welding unit, and three hydromatic units on the three machines are operating simultaneously; thus 12 spot welds are made simultaneously. Since there are six transformers working in conjunction, two spot welds are controlled from each transformer.

Watching the machines turn out completely welded underbodies at the rate of 45 per hour is a revelation in mechanical ingenuity, and a tribute to the designers and builders of so complicated yet so efficient a piece of production machinery. The machines were built by the Progressive Welder Co., Detroit, working in conjunction with engineers of the Packard Motor Car Co., Detroit.

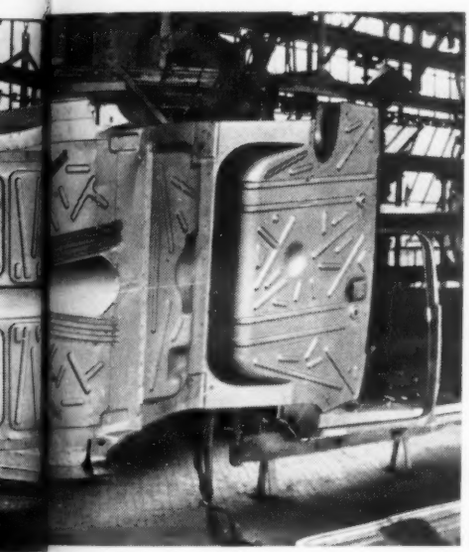


Fig. 6—Completed underbody is hung on overhead conveyor for transfer to the body line. Location of some of the 600 spot welds is indicated clearly

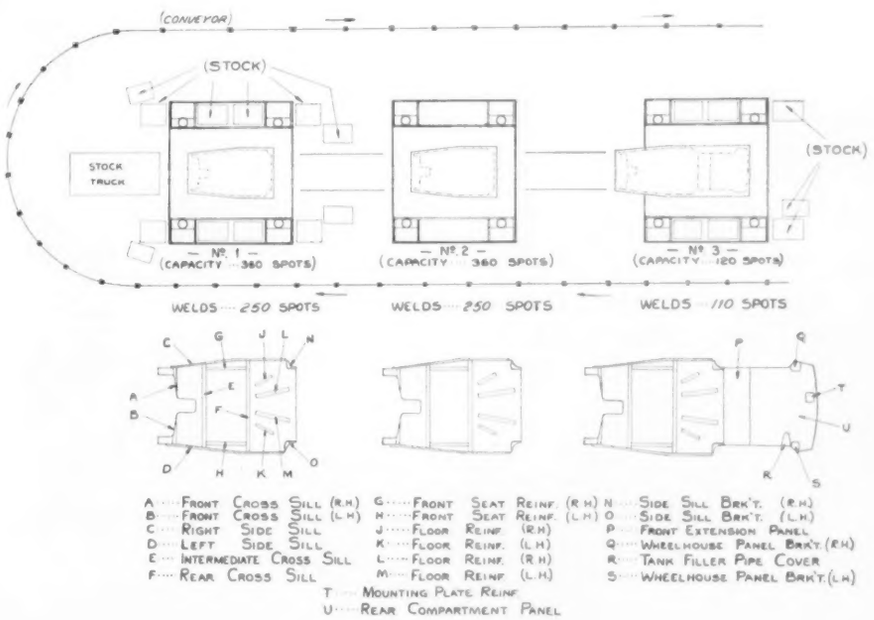
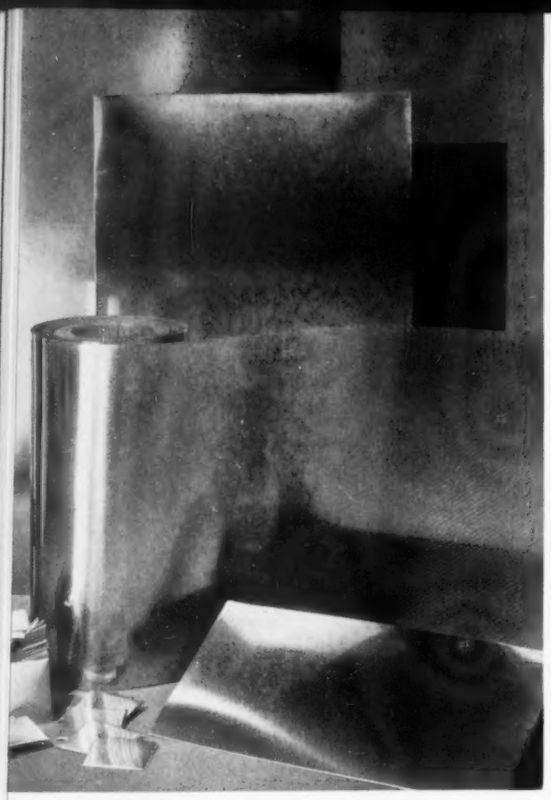


Fig. 7—Diagrammatic layout of three welding machines, stock supplies and conveyors; also showing component parts of spot welded underbody assembly

A New Form



The new material is being supplied in rolls 24 inches wide and in lengths of 50 feet, from which any desired quantity may be cut easily with heavy shears, or tin snips

■ STAINLESS STEEL in a new, thinner and less expensive form now more than ever is prepared to invade fields of application formerly dominated by wood, oil cloth, linoleum, tile and other materials.

A few years ago stainless steel came into common use for paring knives and kitchen cutlery. Automobiles began to appear with stainless steel trim of lasting beauty, resistant to rust and corrosion.

Other products followed the trend —quality tableware, book ends, watch cases, kitchen and hospital equipment—while use of stainless steel construction for shop windows and building fronts came more and more into acceptance.

But more widespread utilization of the advantages of stainless steel was somewhat retarded by prohibitive cost. The metal in its standard gages is difficult to form, is hard and tough and requires special tools and special skill. For home use especially, stainless steel remained in the luxury class, seldom being used to any great extent in homes below the $50,000 class or where cost was no object.

An entirely new form of the metal, however, has been announced by Ludlum Steel Co., Watervliet, N. Y., and this new form, known as Ludlite, is expected to take stainless steel out of the luxury class and make it available to the average home owner, builder, store, hotel, institution and manufacturer.

The new product, announced February 17 by Hiland G. Batcheller, president, is considered by the Ludlum company as a popularization of its stainless steel product known as Silcrome.

Ludlite is a composite material made up of a very light gage, Silcrome stainless steel and a flexible backing of asphalted felt, perma-

The tiled walls of this modern kitchen in a moderate-priced home are not really of tile at all, but are made up of 4-inch squares of stainless steel Ludlite

# of Stainless Steel

Widespread utilization of stainless steel was once retarded by prohibitive costs and application difficulties. A thinner, less expensive form now promises to open even greater fields, replacing wood, linoleum and other nonmetallic materials

nently bonded by heat and pressure. It combines all the usual advantages of stainless steel—beauty, permanence, resistance to rust and corrosion—with remarkable ease of application and more attractive economy.

A further important feature is that the flexible backing deadens sound. The result is elimination of clatter and noise wherever the material is used.

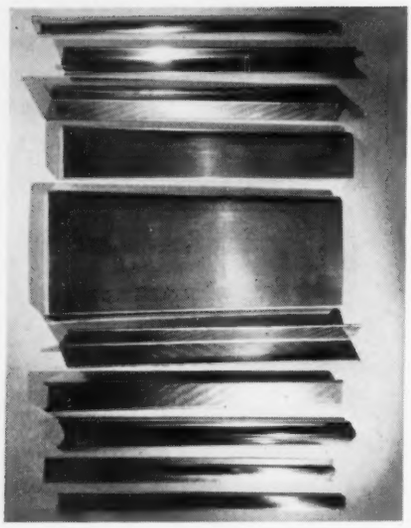
Unlike standard gages of steel, the new product can be used by anyone handy with ordinary tools. The small manufacturer can thus buy genuine stainless steel in modest quantities and have it applied by his own workmen. The larger manufacturer, also using his own carpenters or general mechanics for the job, can apply Ludlite in all sorts of projects that might not otherwise be attempted because of costs and difficulties involved.

The material itself is now being produced in rolls 24 inches wide and in lengths of 50 feet, from which any desired quantity may be cut easily. It is also furnished in tiles 4 inches square. A special waterproof cement for applying Ludlite to wood plaster, fiber board, concrete and other surfaces has been developed.

Ludlite may be cut right on the job with ordinary heavy shears, tin snips, or a fine-toothed saw. It can be readily shaped and cemented, nailed or screwed in place. Attractive molding strips of stainless steel for finishing edges and joints are also available in all needed shapes and styles.

Successful experiments with Ludlite by home craftsmen are of interest to prospective industrial users because they testify to the

These wooden shelves are covered with the new thin, stainless steel cut from rolls to desired length. Beauty, permanency, cleanliness and other advantages of heavy stainless steel construction are obtained



Attractive molding strips of stainless steel for finishing edges and joints are available in all needed shapes and styles

ease with which this material can be worked. These domestic applications include shelf coverings in pantries and kitchens, drain boards, back panels for sinks, tiling for bathroom walls, linings for bins and boxes, table tops, trays, door push plates and other practical or decorative uses.

Practical applications in stores, restaurants and hotels suggest similar uses in factory cafeterias and dining rooms, in office washrooms and various types of work rooms.

The new Ludlum product is too recent a development to afford many actual examples of its use in industry, but its possibilities are being explored in a number of fields. The food industries offer an obvious market because of their need for sanitary materials and protection from contamination. Textile industries are expected to find use for the product, especially where silk and other fine textiles are exposed to damage from splinters and rough surfaces.

It is well adapted to use in the chemical industries. Its special properties also suggest use in storage warehouses, especially on walls and in coolers and hoppers.

A new combining mill has been designed and constructed for the production of Ludlite and the manufacture of this material already is on a volume basis.

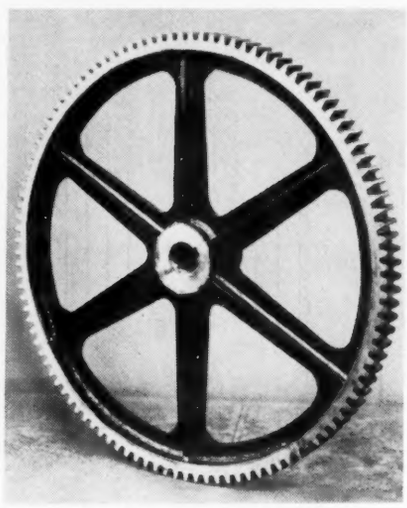
Reprints Booklet

■ Engineering experiment station of Ohio State university's college of engineering, Columbus, O., has published in booklet form "Thermodynamic Investigation of the Flash Evaporation of Concentrated Potassium Sulphate Liquor from Polyhalite." Investigation covered in this publication was done in co-operation with work by United States bureau of mines to assist in development of American commercial potash production based on the New Mexico deposits. Booklet, written by Joseph P. Creaugh, Joseph H. Koffolt and James R. Withrow, is a reprint from volume 32, No. 4 of *Transactions of the American Institute of Chemical Engineers.*

Improved Method For Gear Wheels

■ A 48-INCH GEAR WHEEL recently made by a machine shop by shape cutting and welding has emphasized the value of this procedure in the fabrication of machinery parts and equipment.

In the construction of this gear wheel, the web and spoke reinforcements were cut from ⅝-inch plate by an oxyacetylene shape cutting machine. It can be seen from the illustration that the web is all one piece of metal with a hole cut in the center to take the hub, which is a section cut from 8-inch round stock. The outer diameter of the web section was accurately cut to fit tightly into the gear ring.



Large gear wheel fabricated by flame cutting and welding. Photo courtesy Linde Air Products Co., New York

Twelve reinforcing pieces were necessary, two for each spoke, and these were fabricated on a quantity production basis by the cutting machine. In the case of a larger order for similar parts, several blowpipes can be attached to the cutting machine to speed production further.

To make the shaft hole, the hub was first pierced with an oxygen lance. The shape cutting machine then cut the hole and keyway to approximate dimensions for machining.

Fillet welds were employed throughout in assembling the various shape-cut parts. The spoke section was welded to the gear ring, the hub to the spoke section, and the reinforcing pieces to the spokes, gear rings, and hub. The finished wheel is a compact, strong, lightweight product.

Malleable Founders Set Up Research Program

■ A two-point research program for the current year has been set in motion by the Malleable Founders' society through action of its research and development committee at a meeting in Cleveland recently. First phase of the program covers practical research and includes correlation of existing information on processes and equipment employed by the 72 member plants in manufacture of malleable iron. This may be regarded as an extension of the type of activity inherent in the shop practice councils which have helped solve the industry's problems.

Immediate objective of the practical survey will be to develop reliable standards for annealing. Particular attention will be devoted to determination of proper cycles for different methods of annealing, covering different types of equipment; and to accommodate variations in malleable products as they relate to specific analysis, casting design, section thickness, and requirements in consumer use.

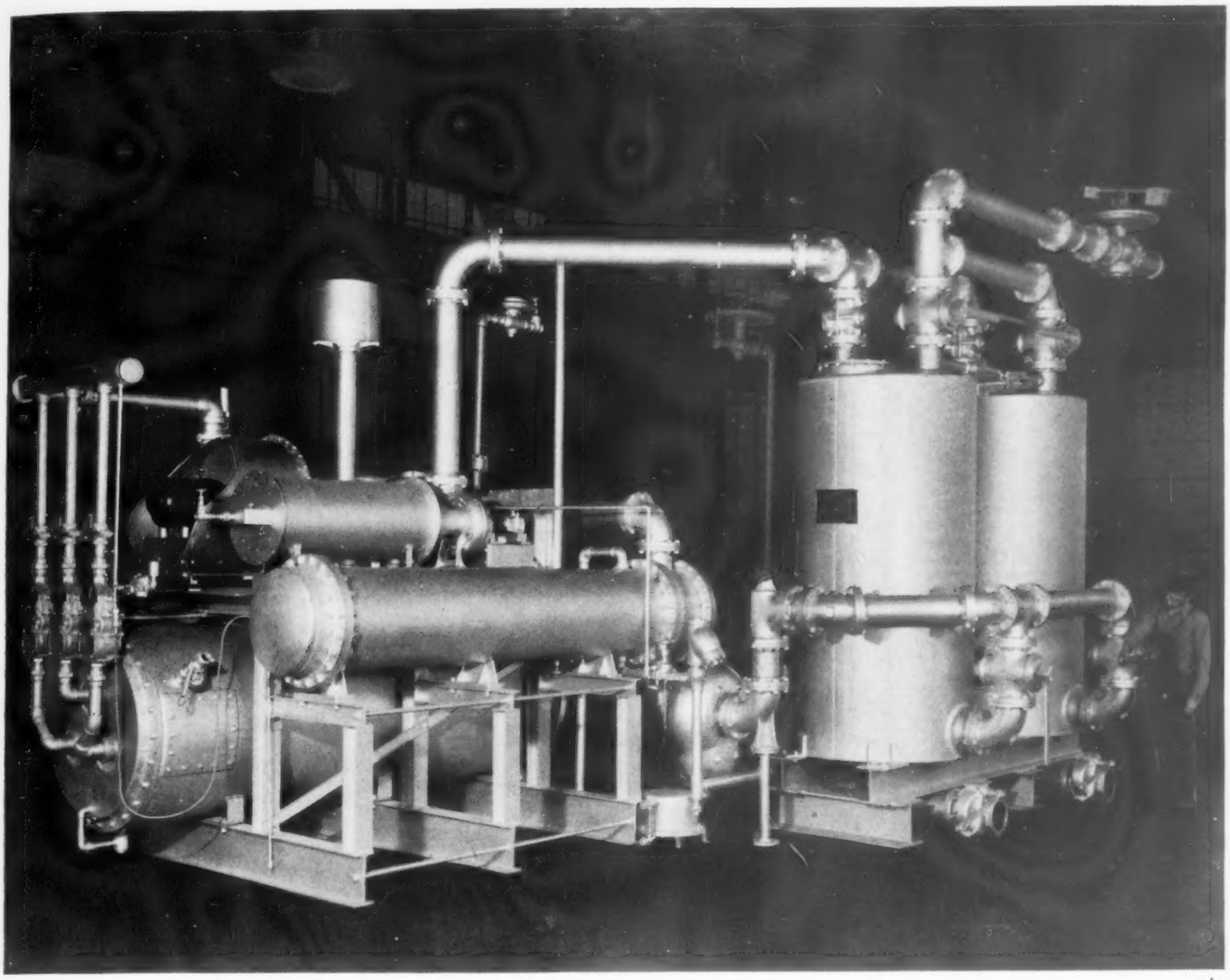
Pure research, involving laboratory studies, will comprise the committee's second major activity. This will feature special studies of products other than normal malleable iron, sometimes referred to as pearlitic malleable. It will include also investigations of a fundamental nature such as prevention of shrinks, of dendritic structure, and of graphitization in the hard iron while providing for its acceleration in subsequent annealing treatment.

The committee is being aided in this program by a technical council composed of plant metallurgist and laboratory technicians.

Chart Used Repeatedly

■ Permochart, the renewable chart which was introduced recently for recording meters, has been duplicated by a new and improved chart whose surface is claimed to be harder and stronger thereby producing a clean pen line.

Chart which is manufactured by Permochart Co., Koppers Bldg., Pittsburgh, can be used repeatedly, for each day's recordings can be rubbed off with a damp cloth.



★

More and more producers of quality steel are turning to the Kemp Atmos-Gas Producer for bright annealing. In fact, the preponderance of Kemp equipment in the new mills suggests a *trend* to this complete, compact, continuous, automatic Atmos-Gas Producer that has brought operating cost to a new all-time low.

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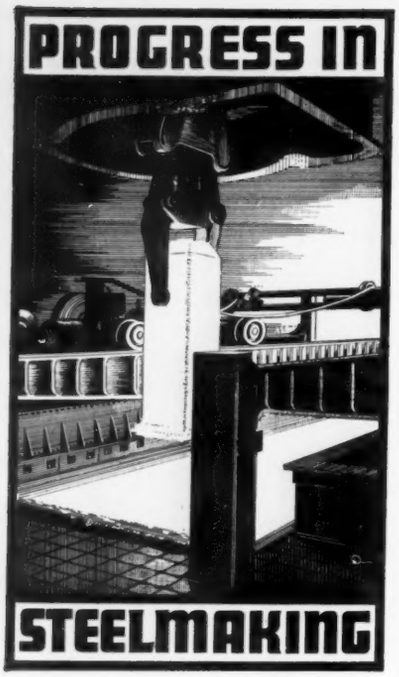


Brazing Bus Bars

New method produces joints with lower electrical losses, easily made to fit all connections. Speed and low cost are advantages

By R. A. GOELLER*
Vice President
Hatzel & Buehler Inc.
New York

■ STEEL & TUBES Inc., a subsidiary of Republic Steel Corp., Cleveland, recently built one of the largest electro-galvanizing plants in the country.

Installed at its Brooklyn conduit plant, over 20 tons of copper bus bars were required in a system capable of delivering some 36,000 amperes at 4 to 5 volts. With such high currents at these low voltages, joints had to be extremely low in resistance to limit losses. Joints were of sufficient importance to warrant an investigation of several types as to comparative costs, electrical loss, mechanical strength and resistance to corrosive fumes.

Common practice is to join bus bars with clamps or bolted joints; this requires lapping the bars to provide sufficient contact area. Also, adjoining faces have to be carefully faced and cleaned. Corrosion is an important element in connection with this type of joint. Other methods considered included use of soft solder, silver plated surfaces, silver foil between each joint as well as welding and brazing. After several of these possibilities had been eliminated due to cost, brazing appeared the most satisfactory from an all-around viewpoint.

Laboratory tests indicated joints in ¼ x 4-inch bars with a ¾-inch lap could be made at a material cost varying from $0.043 to $0.035 per square inch of joint area depending upon the brazing alloy used. The lower temperature alloy of course required less gas and incidentally was lower in cost per pound. Tests showed brazing alloy cost to be directly proportional to area of the lap regardless of thickness of the bar used. Cost of gases rises rapidly with the mass of metal.

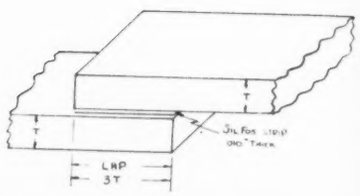


Fig. 2—Lap joint type of brazed connection

The detailed laboratory report presented three outstanding facts. Two pieces of 6 x ½-inch copper with a 1½-inch lap joined by low temperature brazing had a lower fall-of-potential by 0.2 millivolts than a sample of similar length without a splice, indicating negligible power losses would occur in the joint. Tensile strength was high as these joints parted at 68,500 pounds. A lap of 1½ inches was ample both mechanically and electrically, a considerable saving of copper over conventional clamped

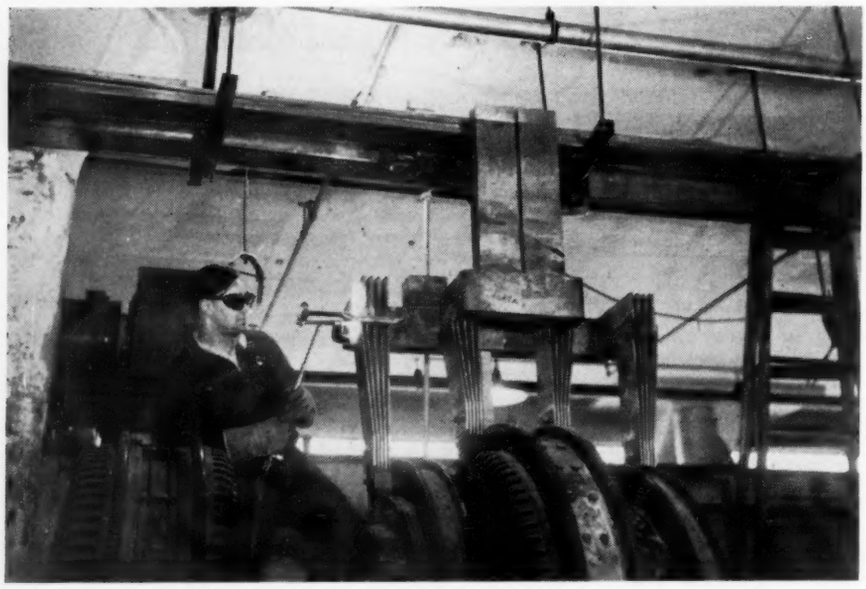


Fig. 1—In multiple bar brazing, operator makes each joint separately, working outward from the inside

joints where a lap at least equal to the width (6 inches here) is employed.

Procedure finally adopted included use of brazing alloy in sheets 0.010-inch thick with a melting point of 1300 degrees Fahr. The alloy consists of 80 per cent copper, 15 per cent silver and 5 per cent phosphorus. During application, some of the phosphorus is boiled off so that temperatures above 1300 degrees are required to melt the joint apart.

Making the joint, shown in Fig. 2, was simple. Adjoining faces of the lap were cleaned with emery cloth or power-driven sander, the lap distance scribed on each piece and pieces assembled with a sheet of brazing alloy between them. The alloy strip was about 1/32-inch shorter than the joint dimensions and carried a thin coat of flux on each side. Clamped with ordinary C-clamps, the joint was heated by an oxyacetylene torch until the alloy ran out at the edges. In some cases alloy in rod form was used

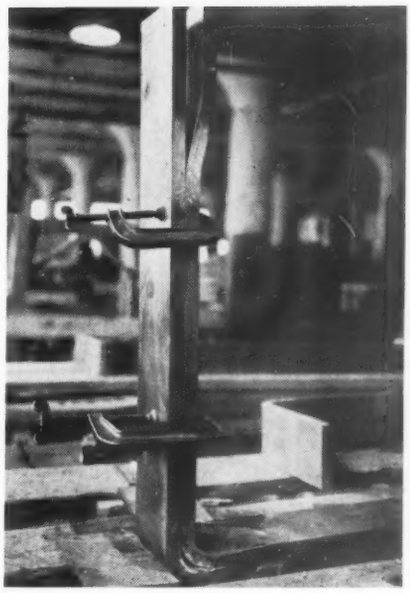


Fig. 4—Bars, 6 by 1-inch, brazed at ends and at right angle on work bench. Brazing alloy in rod form was fed into joints to depth of 3 inches

nections. Brazed joints were found to be free from acid corrosion and subsequent deterioration. Also there was no reaction of dissimilar metals in brazed joints which prevents failures from this cause.

Another factor found quite important was the space saving feature of the brazed joint which made it possible to run bus close to steel supports, top of tanks and to each other still maintaining sufficient clearance at the joints. Also, some joints had to be made in the tanks and subsequently rubber coated; the smooth outside contour of the brazed joint greatly facilitated this rubberizing and assured a well protected joint.

Considerable flexibility is inherent in the brazed joints so that it is a relatively simple matter to make changes in direction, take off taps, as in Fig. 3, and slide one bar over another to properly position them. Reduction in lap from 6 inches in the conventional joint to 1½ in the brazed joint made possible an unusual saving in copper.

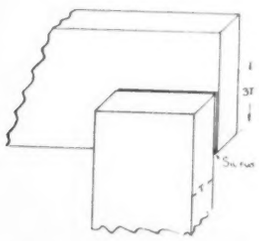


Fig. 3—Right angle or branch tap design

to fill voids that could not be handled otherwise.

Brazing bus bars by this method appears to have several important advantages. However, there are a few factors that require care. Since heat is employed in making joints of this character, expansion of the metal occurs and must be provided for as well as the subsequent contraction.

In answer to the question—why not a butt weld?—field difficulties do not make it practical to machine the ends, and to have special clamps to hold the bars in position and put them under pressure. Expansion and small margin of surface to work with indicate the lap method most practical although milled ends were employed on one job to give half lap joints which have the appearance of a butt joint when finished. Figs. 6, 7 and 8, show steps in making these joints.

Although multiple laminated joints have to be made in pairs, and not all as a unit, the joints, as shown in Fig. 1, do not have the usual bulky appearance of bus con-

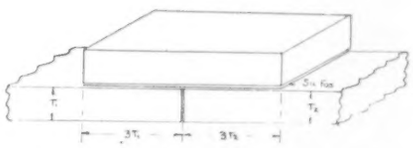


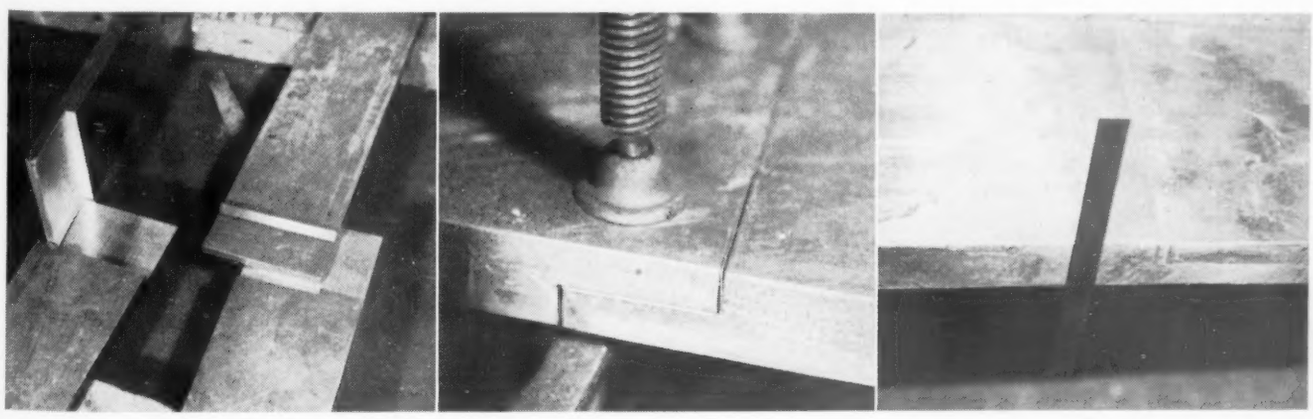
Fig. 5—Butt joint using splice plate

Total cost of brazed joints, including copper lapped, was $1.80 compared to $4.53 for bolted joints with drilled holes, $4.03 for bolted joints with punched holes and $6.68 for joints made with cast iron clamps. These figures include the same labor cost in each case, $1.70 per hour plus 20 per cent for supervision, but do not bear any burden for overhead or allowance for insurance, taxes, etc.

On another bus bar installation, a slightly different type of brazed joint was used. Here bars were butted and a splice or fish plate

(*Please turn to Page* 76)

Figs. 6, 7 and 8—Joints in anode bars passing through tank were rubber coated so these 6 by 1-inch bars were notched by milling 3 inches, assembled with brazing alloy strips and brazed to form the completed joint shown



Are your trucks

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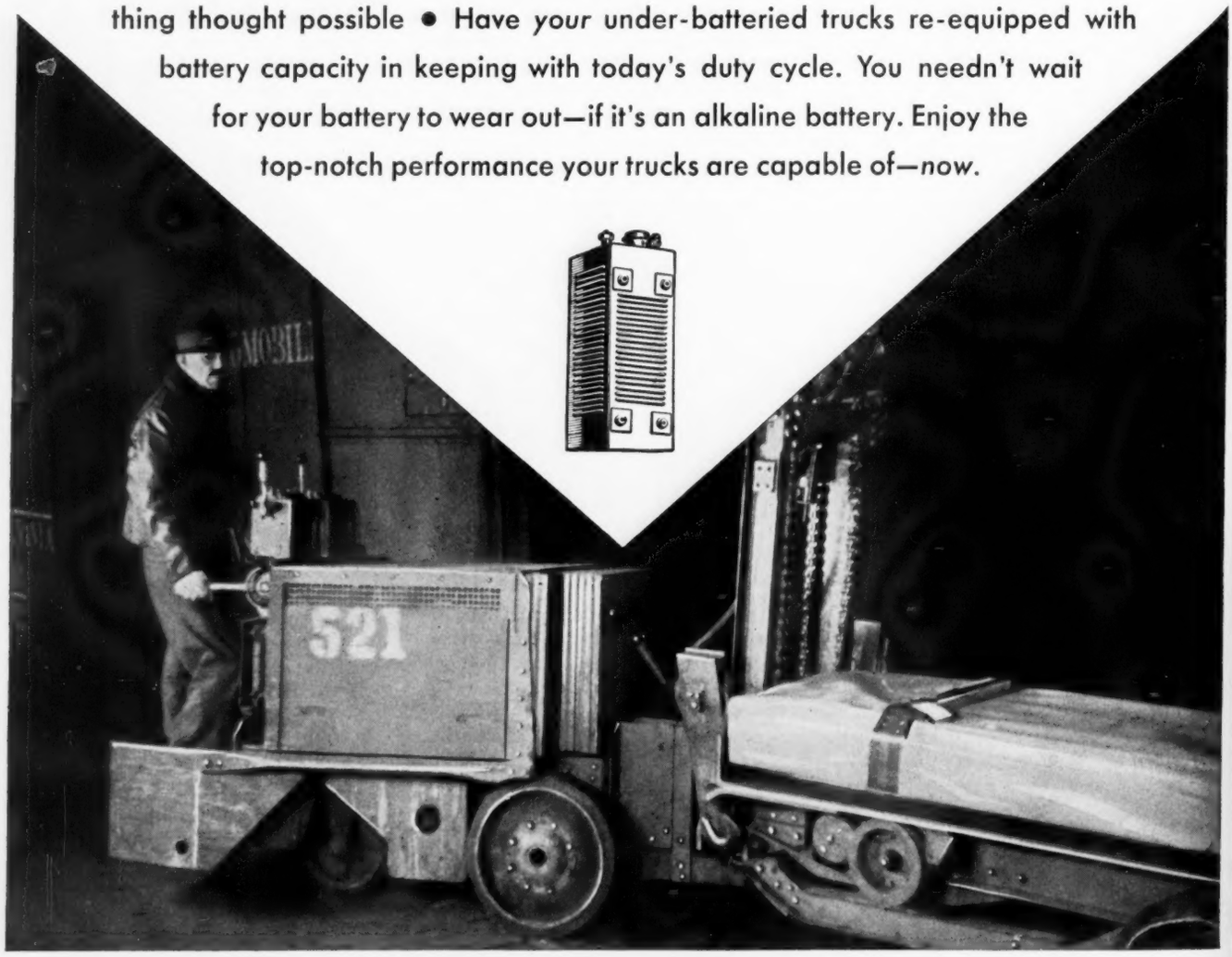
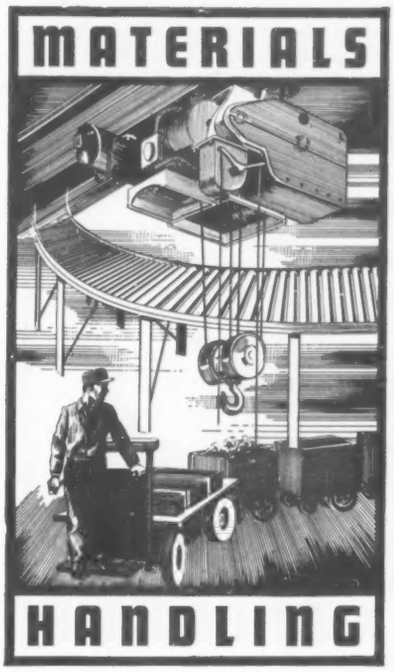
Though you may not notice it, the job imposed on battery industrial trucks is steadily increasing. Often it outgrows the battery which was engineered for the smaller duty cycle of 5 or 10 years ago when the truck first went into service. Performance suffers correspondingly, although the operator may not realize it. • The solution is to re-engineer the battery for *today's* duty cycle. The immediate improvement in performance is always marked, frequently 'way beyond anything thought possible • Have *your* under-batteried trucks re-equipped with battery capacity in keeping with today's duty cycle. You needn't wait for your battery to wear out—if it's an alkaline battery. Enjoy the top-notch performance your trucks are capable of—*now*.



This articulated sheet-handling truck is powered by two sets of 30 C8 alkaline batteries (capacity 450 ampere hours at 36 volts), relayed at 8 to 12 hour intervals; engineered to insure ample capacity for 12 hours of normal operation—8 hours of peak-demand operation. With batteries so engineered, ample power for every demand—either normal or emergency—is always available.

EDISON STORAGE BATTERY

DIVISION OF THOMAS A. EDISON, INC., WEST ORANGE, NEW JERSEY



Handling Sheets

Another handling problem, complicated by many gages, widths and lengths of sheets, is solved by use of efficient cranes and lifters

■ DIVERSITY of gages, lengths and widths of sheets in itself makes a handling problem of real magnitude in a modern steel mill. Add to it the heavy weight of the products and the high speeds characteristic of today's production, and methods of transporting and storing, as well as other tasks incidental to shipment of finished steel, assume increasing importance. The accompanying illustrations show how one large steel producer of the Middle West has been utilizing mechanical means to move packs of sheets more efficiently about the mill, as well as to and within storage departments.

In Fig. 1 electric overhead traveling crane equipped with a special lifter is picking up a pack of sheets from the rollers of a runout table. The lifting unit in this instance is a 20-ton motor-operated device, 13 feet long and with opening range of 12 to 76 inches. The load being picked up weighs 27,000 pounds and is composed of 12 gage stock 42½ by 112 inches. This operation is performed after the pack of steel has been weighed.

After sheets have been moved to storage, cranes and lifters again play a leading part in the handling system. In Fig. 2, a 12,000-pound load of 31 gage sheets 25½ by 84 inches are being transported. The lifter in this instance is a hand-operated unit of 6-ton capacity with opening range of 14 to 18 inches. It is 6 feet 8 inches long.

This same steel plant is using cranes and lifters for handling tinplate. Fig. 3 shows a 6-ton capacity

Fig. 1—Co-ordination of overhead crane with motor-operated lifter speeds lifting of sheets from runout table rollers. Photos courtesy Cullen-Friestedt Co., Chicago

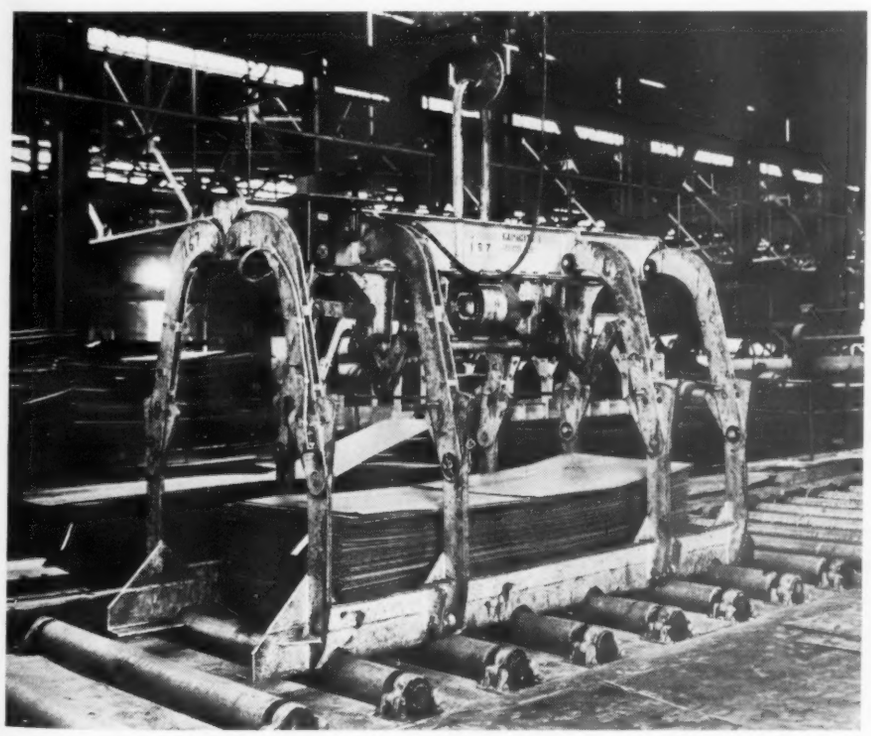
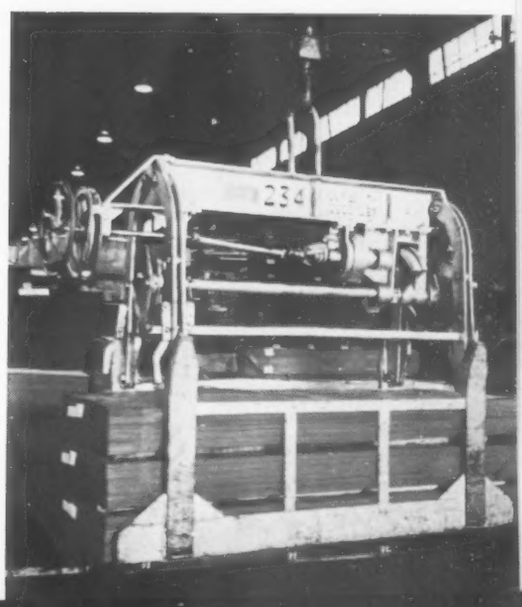


Fig. 2—Hand operated lifter easily handles 12,000-pound load of sheets. Individual sheets are 84 inches long



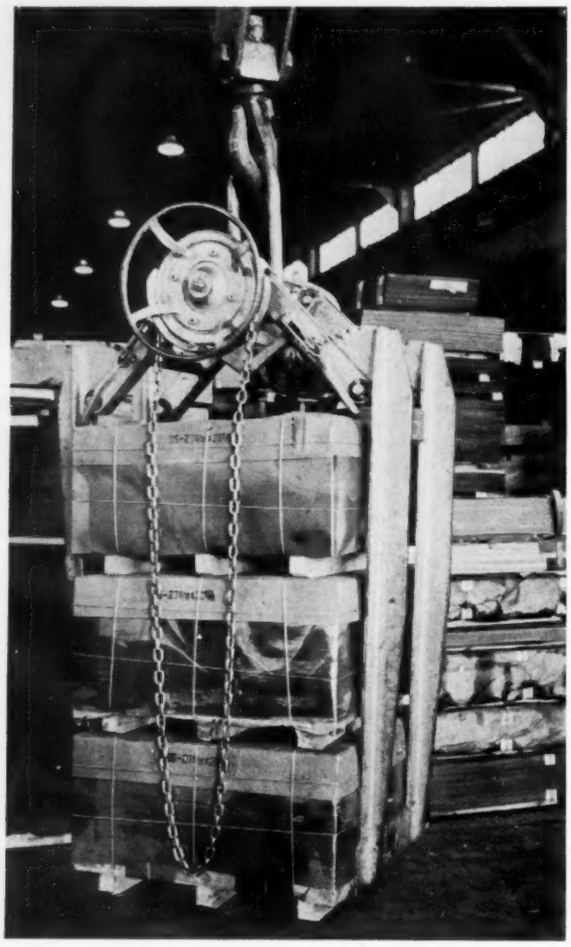


Fig. 3—Another lifter used in this mill is a hand-operated unit with chain control. The load here is 11,000 pounds of tin plate wrapped and tied in three separate bundles for shipment

standing unit with opening range of 14 to 36 inches transporting 11,000 pounds of plate The latter is 31 gage 27 9/16 x 28⅝ inches. The lifter itself is 26 inches long, and is hand-operated, with chain control for easy manipulation of the guide wheel which opens and closes the jaws of the lifter.

Greater utilization of storage space and reduction of handling cost are said to have resulted from the coupling of cranes and lifters in this plant.

Saves Its Cost In Two Years

■ Mechanical handling equipment properly applied frequently effects savings sufficient to repay for the entire cost of installation within a comparatively short time.

A recent example is a motorization of an inclined plane for lowering coal from the dump house of a Virginia mine to the railroad tipple. This installation is reported to have saved its cost in less than two years. A good portion of the economies was traceable to elimination of wrecks and delays previously experienced.

The mine is operated by Blue Diamond Coal Co. There is a difference in elevation of 950 feet at this operation. To lower coal, two monitor cars in balance are used on the incline, the cars being connected by ropes which pass around a double pulley arrangement at the top of the incline. The average grade is approximately 14 per cent, varying from a minimum of 6 to a maximum of 27.

Before motorization, the operation depended entirely upon gravity. The high speed required at times to prevent stalling in "load flats" caused costly wrecks and delays. A 600-horsepower 2200-volt motor was connected to the pulley mechanism. When the loaded car is on the steeper parts of the profile, the motor acts as a generator and furnishes regenerative braking to limit the speed of the system.

When the gravity force is not sufficient to keep the cars moving at approximately 1750 feet per minute, the motor furnishes power to keep up the speed. When the motor is driving the cars, it takes 300 horsepower from the line and when acting as a regenerative brake, it restores a peak of 1200 horsepower to the line, a considerable saving.

Arrangements have been made for "plugging" the motor to stop the cars at the end of the run. A six-point, cam-operated, master control switch provides a selection of speeds. Current limit relays are used to govern the closing of the accelerating contactor when the controller is thrown to full running position instantly. Either over-speed or voltage failure causes a solenoid valve to operate air brakes and prevent the monitors from running away. No wrecks have occurred since this motorization was completed.

Pan Conveyor for Refractory Binder

■ In handling Lumnite, a high temperature refractory concrete binder, at the plant of the Atlas Lumnite Cement Co., United States Steel subsidiary, a continuous pan conveyor approximately 80 feet long is used to catch and convey the molten material as it issues from the bottom of a kiln.

This conveyor is similar to a pig iron casting machine, being made up of small pans or molds. When the pans have been filled, the conveyor is stopped and the pigs of white hot material are allowed to solidify and cool. They are then dumped and the conveyor is ready for the next tap. In parts of the melting zone of the kiln the temperature mounts as high as 3000 degrees Fahr. A description of the product and the processes of its manufacture is featured in an article in the February issue of U. S. Steel News, employe publication of United States Steel Corp.

Switcher Crane Does Three Major Jobs

■ An eastern automotive plant is using a switcher crane for three major materials handling jobs in its yard. These three separate operations are: (1) handling scrap steel from storage bins to gondola freight cars, utilizing a 36-inch magnet which is energized from a direct-connected generator in the crane cab; (2) handling scrap steel turnings from a storage pile to a gondola freight car, in this instance making use of a half-yard clamshell bucket; (3) switching freight cars in the plant yard.

In addition to the foregoing major handling operations, the crane is also a very helpful unit in performing several small odd jobs around the plant. For example, recently the company installed a deep-well pump in a new well. The crane and clam-

(*Please turn to Page* 75)

CONVENTION

home again!

The May, Pre-Convention Issue . . .

■ Previewing the convention in its entirety . . . the line-up of exhibitors . . . schedule of technical sessions, giving the time, place and subjects . . . outline of social functions . . . program of plant visitation . . . focusing the interest, holding the attention of readers the world over. These, in addition to the regular features of any issue of The Foundry, will make the May issue outstanding—truly an advertising opportunity!

The June, Post-Convention Issue . . .

■ Recounting after the visiting foundrymen have gone home . . . after the last box, barrel and crate is re-consigned to its shipper and the 42nd Annual A. F. A. Convention becomes part of the indelible history of the foundry industry, foundrymen will turn to the *Post*-Convention issue of The Foundry. There they know they will find an accurate chronicle of what happened . . . what was said . . . and who were there.

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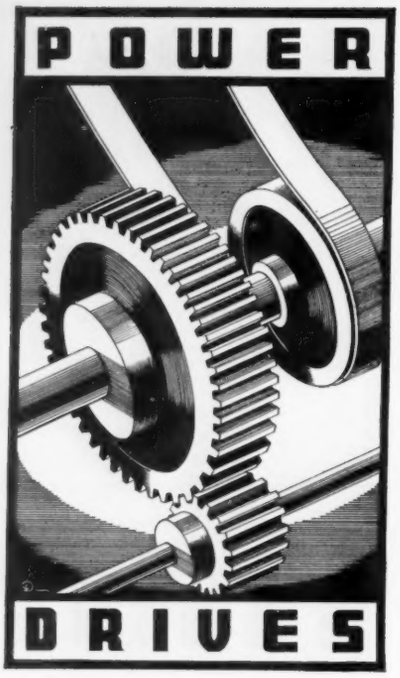


Drive Maintenance

Putting full responsibility on plant engineering department simplifies drive maintenance, eliminates arguments so common with divided control

■ THE PLANT engineering department, in a large mid-western plant manufacturing automotive specialities, has charge of plant layout, the installation and maintenance of all plant equipment, design of special machines, and is consulted in the purchase of all new equipment.

By the co-ordination of these responsibilities and activities, any difficulties in operation or maintenance are immediately brought to the attention of the head of this department. Thus, steps can be taken at once to correct the difficulties without going through elaborate interdepartmental red tape and arguments, so common with divided selection, supervision and control.

Also, in the design and selection of equipment, probable operation and maintenance requirements are carefully and fully considered, knowing that this department will suffer the grief, if there should be any. In addition, it would be up to it to correct any mistakes in judgment. This does not mean that any error is covered up; costs and reports prevent that. However, it does prevent divided responsibility and so makes the plant engineer more careful in his analysis and solution of a problem.

When a mistake is made it is discovered and the remedy applied quickly. For example, on a turntable testing unit, which was belt driven, the splashing oil rapidly weakened the belt so it quickly failed under the heavy starting load. A change to a silent chain drive overcame this difficulty.

Because of the wide variety of production problems, it is impossible in an article of this nature to go into complete details on all phases of the work. The company manufactures automotive supplies and parts and several unrelated items. However, this article will cover some of the general policies and practices followed. There are exceptions, however, as no definite, inflexible rules may be applied to practices, operation and maintenance.

Drives Are Mixed

In parts of the plant, individual drives predominate; in other parts, group drives predominate. In general, the plant is a mixture of both group and individual drives. Whenever possible production is on the straight line unit plan where one product or group of parts of a product are manufactured as a unit to reduce materials handling. Most of these production units are individually driven, but not all. Types of machines and layout are the deciding factors.

In general, single-purpose machines, many of which are built especially for a certain task, are individually driven. Multi-purpose or general machine tools, if not too large, lend themselves to either type of drive. On group-driven machines, speed control or change may be obtained by changing pulleys. On individually driven machines, this control is built into the machine if necessary.

Punch and stamping presses and automatic screw machines are all group driven, except for the larger or specially built units. In laying out these groups, every effort was made to make them comparatively small. On groups of machines which would require approximately a 5-horsepower motor, if individually driven, the groups are arranged to be driven by a 25-horsepower motor, or smaller unit, where it is possible. In most cases motors on groups of small machines are handled by a 7½-horsepower motor or under. There are exceptions, of course, but this covers, in general, the practice on group drives. Whenever possible a group is assigned to the manufacture of a part, or associated parts, so its operation is controlled by the demand for that product, thus acting independently of other products.

In laying out lineshaft drives a careful study is made of the torque, especially with heavy starting and reversing loads, such as with planers, and the bending loads on the shafts. Hangers are spaced, therefore, according to the pulley load and the motor connected as near as possible to the center of the torque moment.

Lineshaft speeds vary in some cases, and this necessitates changing pulleys whenever a machine is moved. One advantage of individual drive is that, if the machine is moved, it is ready to operate without further changes as soon as set up, as the control is mounted on and moved with the machine.

The polishing and buffing wheels, which were formerly group driven, are now all new units, individually driven. These units have built-in motors with a built-in, geared speed changing unit. Thus the operator is able to obtain any of three speeds by simply shifting a lever. When

working on different finishes and materials, the operator is able to select quickly the best speed for the work. Previously it had been necessary to change the diameter of the polishing wheels to obtain the most satisfactory speeds. With all polishing heads driven at the same speed, much time was lost in changing wheels. Similar units of grinding wheels permit changing the speed as the diameter of the wheel decreases.

Endless Leather Belts

Motor belts are of endless leather and on lineshaft drives on long centers. Individual motor drives are of all types, flat, V-belt, silent chain, and direct connected by flexible coupling. In selecting the type of drive, the type of load, operating characteristics and requirements are considered for each individual case.

Every 30 days motors are carefully inspected, blown out with a portable blower and oil checked, and feelers are inserted to check bearing wear. Bearings are flushed and the oil changed periodically, depending on dust conditions and severity of service. Air from lines serving punch and stamping presses and automatic screw machines is used on the motors in these departments where air pressure, higher than available from the portable blower because of the combination of dirt and oil, is desirable.

To prevent slippage and provide more positive drive on belted conveyors, the motors are mounted on pivoted bases. These bases are also used on some machine drives.

Belts are serviced, tightened, and cleaned by beltmen assigned to that work by department foremen of the departments to whom loose belts were reported by the operators. The beltman also goes through the departments regularly and, with his practiced eye, anticipates much of the servicing that may be necessary. This work is performed when convenient, rather than when an emergency has arisen.

Metallic fasteners of the hinge-and-pin-type are used on all but the motor belts. On oily or dirty belts, after cleaning with naphtha, neatsfoot oil is carefully worked into the belts to lubricate the belt fibers and prevent their drying out.

Lubrication is the most important factor in reducing maintenance and preventing operating trouble. Bearings of anti-friction type, babbitt and bronze are used. Each type has its individual lubrication requirements. High-speed bearings are lubricated every 30 days and other bearings at varying periods up to 6 months.

All bearings which are grease lubricated are provided with fittings for pressure gun lubrication. The man in charge of lubrication, however, is checking over the bearings constantly to anticipate heating or other trouble and to service the few bearings which require daily attention.

This department has charge of 70 men in the plant, including draftsmen and designers, who handle design installation, maintenance, and servicing of equipment and plant. The advantage of the co-ordination of these men with the selection and design of the equipment cannot be overemphasized. First in importance is that all departments work together, as there can be no divided responsibility such as sometimes exists where the work is supervised by several department heads. Therefore, the subdivisions are more willing to help each other. This is of special importance in connection with the mechanical and electrical departments.

Periodic inspections, with duties carefully assigned to each man, provide each subdivision with fixed tasks and responsibilities. This, however, does not prevent one group from reporting impending trouble when discovered, even though the equipment is not under its direct control. Such reports are encouraged.

This set-up of the plant engineering department does not eliminate all trouble but permits more thorough study and determination of the cause and responsibility when trouble occurs. Also, for the same reason, the steps to correct the trouble can be set in motion quicker and easier.

Excessive trouble or maintenance costs are determined from the records of work done by the department. Repeated difficulties in operation or excessive costs are investigated promptly. The reasons found vary. In some cases the equipment is not operated properly. In others a new design or type of equipment is necessary to correct the difficulty.

Accidents Caused by Transmission Belting

■ Accidents relating to the use of transmission belting are more uncommon today than in the past, but it does not follow that we can afford to neglect any proper safeguard. Accidents arising in connection with belting are of different classes. Occasionally an operator comes in contact with a running belt and receives a bad burn. On a few occasions belts have been known to break and strike a workman. This is especially true of high-speed belts that run overhead. Again, through an improperly applied lacing, leaving an uneven joint or a protruding raw-hide pin, the hands of operators have been torn. Other accidents are largely due to carelessness or ignorance on the part of an operator. In many cases a workman has attempted to throw a belt onto the pulley while a shaft was running and has either become entangled in the pulley, or if working from a ladder, has lost his footing or his balance.

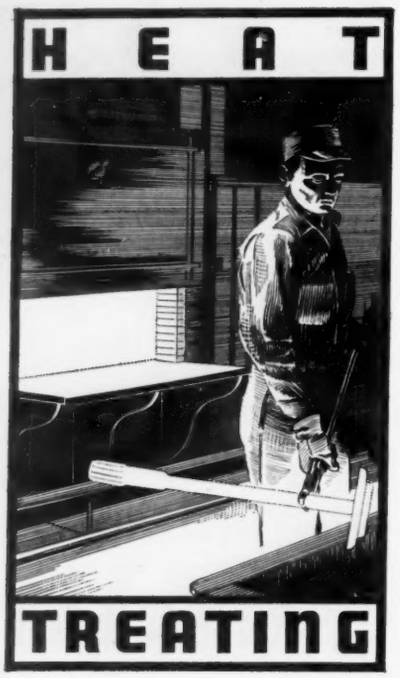
Since the chance for accidents with reference to modern high-grade belting is relatively small if proper methods are used, it is a point in good practice to check up occasionally on the methods that are being used by operators. This is especially true on and around machines which are run for a time by one workman and then by another. On such machines, the proper upkeep of belting is especially liable to be neglected. Good belting and proper methods make for safe belting operation. Time required to make an occasional check up to prove that the belting is good and that the methods are safe, is time well spent.

♦

Where two pulleys are located close together on a shaft, a wise safety precaution is to leave a space equal to twice the width of the wider belt used on the pulleys.

One Bit — One Well

■ Formerly 4 to 6 fishtail bits were required to drill 2000 to 2300 feet to oil-producing sand at Oilton, Tex. Hard-set and hard-faced with Haystellite, single bits are now being used to drill wells in that district



Dry Cyaniding

Definite control of case as to character and penetration, long life of furnace muffles and low overall costs are claimed for this new process

■ A NEW CONTINUOUS case hardening process, designated as "dry cyaniding," has been announced by Surface Combustion Corp., Toledo, O. This process is a combination of continuous nitriding and continuous gas carburizing and is said to produce a case similar in many respects to a cyanide case.

The new process is carried out in a gaseous atmosphere which is a combination of carburizing gases and ammonia. A variety of carburizing gases and ammonia may be used, it is stated, to produce a case with any desirable concentration of carbides and nitrides and ranging from a few thousandths inch to any desirable case depth.

In an exhaustive series of tests with the process, cases have been produced on a variety of SAE steels at different temperatures. It is reported that cases were produced at temperatures as low as 1150 degrees Fahr., and many of the specimens were comparatively hard without quenching.

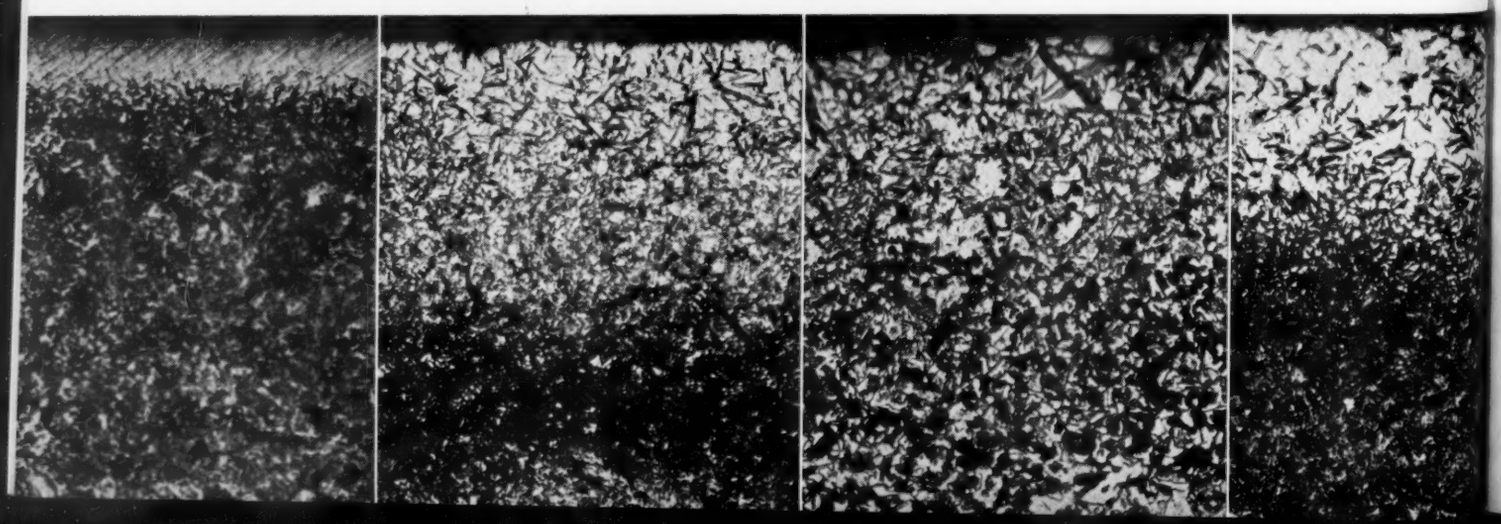
Fig. 1 shows a piece of SAE 3140 steel at a magnification of 300 diameters dry cyanided at 1250 degrees Fahr. and slowly cooled. In Fig. 2 is shown a sample of SAE 5145 steel at a magnification of 300 dry cyanided at 1490 degrees Fahr. and quenched in oil. The hardness as quenched was 62 Rockwell C.

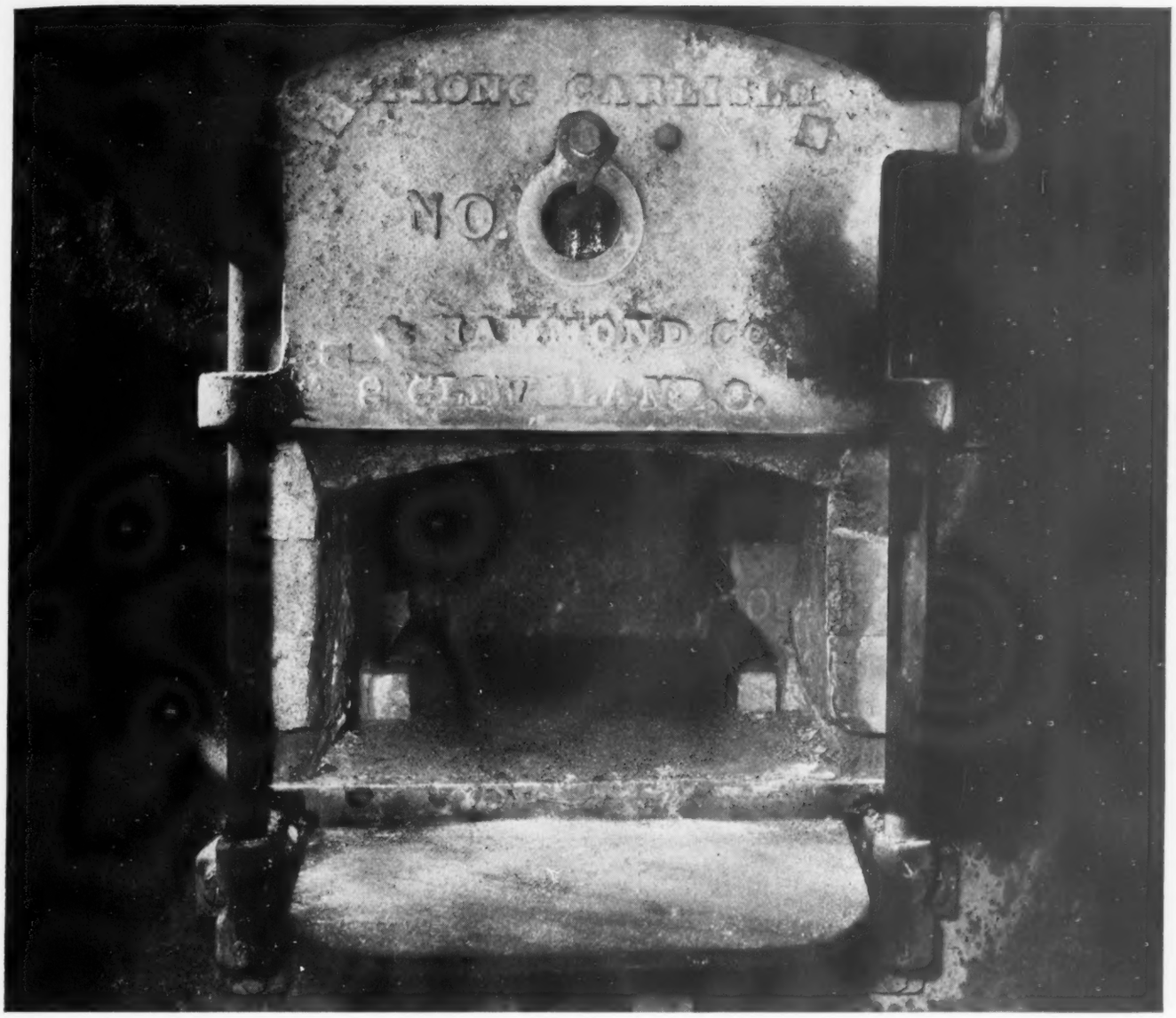
Effect of quenching on a dry cyanide case is illustrated by the photomicrographs in Figs. 3 and 4. Fig. 3 at a magnification of 300 diameters shows a piece of SAE 1020-90 steel which was case hardened at 1450 degrees Fahr. and cooled slowly. The sample shown in Fig. 4 was treated in an identical way but was quenched in oil.

The equipment required for dry cyaniding is similar in many respects to that used for continuous gas carburizing. A typical installation is shown in Fig. 5. In such a furnace, the work is loaded on trays and pushed through a muffle in a continuous cycle. Atmosphere seals at both ends of the furnace prevent infiltration of air. The work, as it emerges from the furnace, is clean and requires no brushing.

Among advantages claimed is that, because the process is continuous, the equipment can be placed in a

From left to right: Fig. 1—SAE 3140 steel dry cyanided at 1250 degrees Fahr. and cooled slowly; Fig. 2—SAE 5145 steel dry cyanided at 1490 degrees Fahr. and quenched in oil; Fig. 3—SAE 1020-90 steel case hardened at 1450 degrees Fahr. and cooled slowly; Fig. 4—SAE 1020-90 steel case hardened and quenched in oil. All views magnified 500 diameters





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Seven to One

● The "Carbofrax" hearth previously used in this high speed furnace gave three and one-half years of service. Fireclay hearths lasted but six months. So here is an illustration of the furnace all set to go again and of course it is equipped with its new "Carbofrax" hearth that is destined to give equal or better service. Seven times the life of fireclay means that the "Carbofrax" hearth paid for itself on the basis of length of life alone. But in addition are the advantages of fuel saving and faster furnace operation due to the high heat conductivity of "Carbofrax", the Carborundum Brand Silicon Carbide Refractory—twelve times that of fireclay. A survey of your heat treating department by one of our representatives will surely point the way to savings.

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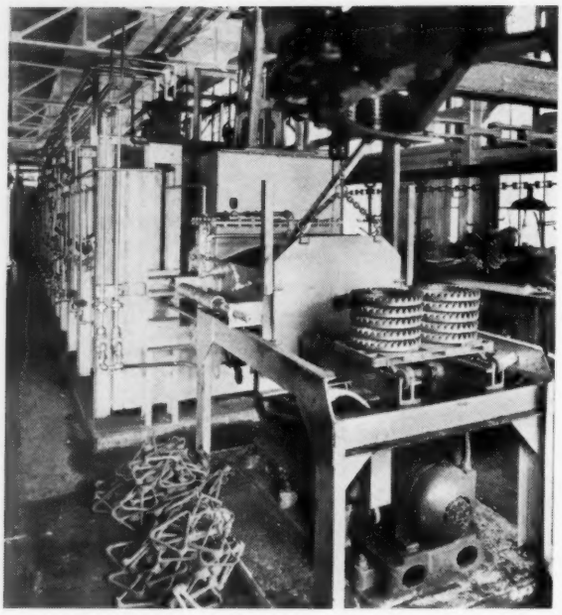


Fig. 5—Dry cyaniding equipment is similar to that used for gas carburizing shown in this illustration. Work on trays goes through muffle furnace in a continuous cycle

production line. This continuity of operation is conducive to production of uniform case. Character and depth of case can be controlled so as to produce any desirable concentration and penetration of the carbides and nitrides. For certain applications a sufficiently hard case can be produced without quenching. Working conditions are clean. Because the process is carried out at comparatively low temperatures, the furnace muffle and alloy parts should have long life.

Furnace For Bright Annealing

■ A NEW BRIGHT annealing furnace with relatively low operating costs has been installed by Roberts Tube Works, Detroit. As shown, it is a U-shaped double deck furnace through which the material is carried on alloy trays pushed along by the chain and hook system.

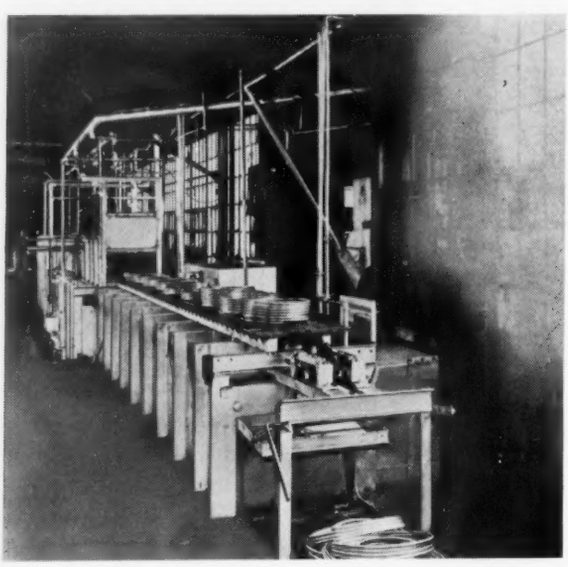
When the material has been placed on the charging platform on the upper deck, the trays are pushed into the first of four sections, a non-heated dead end containing specially prepared atmosphere under sufficient pressure to create air locks which prevent infiltration of outside air. The second section is an elevator compartment in which the batch of loaded trays descends to the lower deck by the simple use of an automatically working motor-driven worm arrangement.

The third section is a heating zone in which an alloy muffle protects the material from direct contact with the products of combustion of the fuel used in the heating process. The last section is the cooling chamber in which the material is cooled to about 150 degrees Fahr. a temperature sufficiently low to exclude any possibility of oxidation when the trays finally emerge to the unloading platform.

Throughout the furnace sufficient quantities of specially prepared atmosphere are introduced at various points to insure against air infiltration. This atmosphere is produced in a cracking unit in which natural gas of 1000 B.t.u.'s is burned with about six times its volume of air. The resulting product is passed through a sulphur scrubber and through a cooling unit in which all moisture is trapped and the atmosphere cooled to about 36 degrees Fahr. Finally it is carried to the furnace sections as described above. A typical analysis of the atmosphere shows 4½ per cent carbon monoxide, 7½ per cent carbon dioxide, with the remainder nitrogen, without a trace of free oxygen.

Fuel used in heating also is natural gas of 1000 B.t.u.'s introduced through automatically controlled burners, with no possibility of free oxygen attacking the nickel alloy muffle. The cooling chamber is equipped with a motor-driven fan which forces the atmosphere to circulate through water-cooled radiator fin coils with sufficient velocity to effect a cooling to 150 degrees Fahr. within the 30 minutes allotted each cycle of the operation.

Capacity of the furnace illustrated is one ton per hour, with a fuel consumption of 1200 cubic feet of gas. The unit may be worked with any of the commonly available commercial gases. The entire equipment was developed by Bellevue Industrial Furnace Co., Detroit, and patents are held by P. J. McIntyre, former chief engineer, Wolverine Tube Co., Detroit.



New gas fired furnace for bright annealing of copper tubing brings added economy to this process

♦

Analyzes 30-Year Price Decline After Wars

■ *The Thirty-Year Decline in Commodity Prices,* by Allen W. Rucker; paper, 24 pages, 6 x 9 inches; supplied by STEEL, Cleveland, for 25 cents; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

The author presents in this pamphlet a study of price trends which, in view of "pump priming" federal efforts, is particularly interesting at this time.

The long decline in prices following false prosperity of great wars is analyzed in view of its effect on the American system. The author traces its beginning and progress, its meaning and suggests methods to cope with it.

Numerous enlightening charts supplement the text and give visual insight into tendencies and results of the process of balancing the business situation.

Welding Contest Will Close in June

■ A manufacturer of arc welding machines and welding rods will close his prize contest for new ideas on how to use arc welding profitably in June of this year. It is our good fortune to deal with many engineers and welding men who are quite competent to get some of this money. It will do the welding business, gas and electric resistance as well as electric arc welding, a great deal of good for many men to submit ideas on how to make or save money with welding. Radio did not amount to much until literally thousands of men applied their minds to its problems.

The contest is well advertised so that the purpose of this comment is not to do something that is already well done, but to remind welding men that the time is getting short and that the man is actually going to give away a barrel of money for ideas. Exceptional precautions have been taken to make the contest fair. This would seem fairly obvious, since, if the man simply wanted to buy business or give money away to his friends he could do it much more efficiently than by the method being followed. Anyway, if he gets many good new ideas he will get the money all back and a good deal more. It would be plain dumb to make it anything but fair.

If you wish to help the man spend this $200,000, it would be well not to put off making an entry too long.

Sees Necessity For More Inventions

■ Waldemar B. Kaempffert, science editor of *New York Times*, was quoted as saying on the recently celebrated National Inventor's day—"It is a curious paradox that inventors are threatening to destroy democracy by their very activities. Mass production, standardization and the whole process of regimentation in life have been brought about by the machine."

Since we are consistently urging more rapid progress of invention in the welding field, it seems fair that we answer the charge. Our present difficulties which manifest themselves are over regimentation, and a shocking drift toward a totalarian state, the net result of failure to invent rapidly enough. Collectively and professionally, the engineering public committed a blunder some twenty years ago for which we are now paying the penalty. The error consisted in the more or less universal belief that the art of invention could itself be

By ROBERT E. KINKEAD

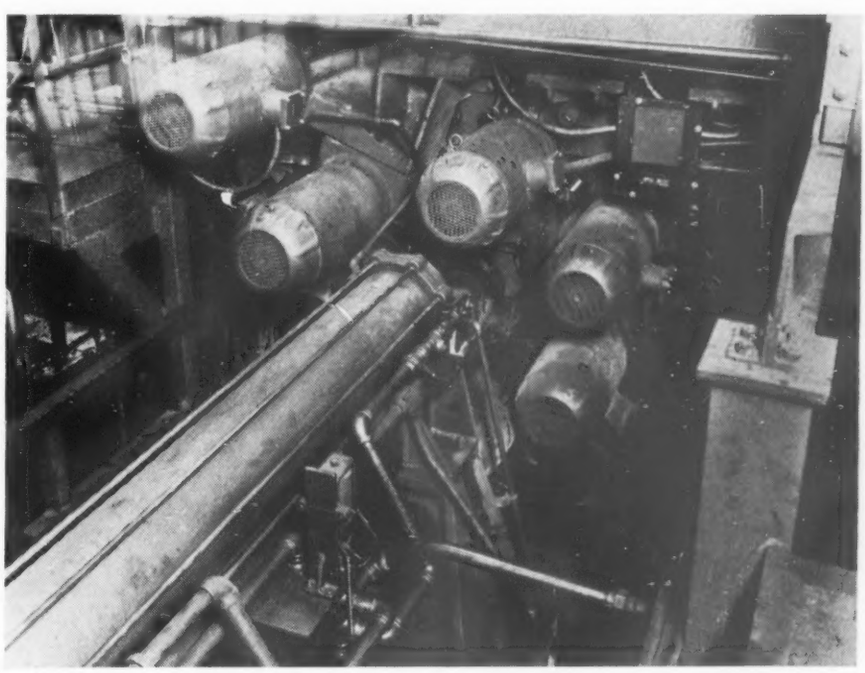
On this page the author, well-known consulting engineer in welding is given wide latitude in presenting his views. They do not necessarily coincide with those of the editors of STEEL

regimented and put on a mass production basis. As a consequence, a large number of capable men are occupied in research departments carrying out developments rather than making inventions. Invention, research, development are three separate entities not one. Industry has poured millions into research and development and created bureaucratic departments which, while profitable, steadily decrease the number of real inventions per man year among the inmates. The engineering profession has steered industry not up a blind alley but along a road which curves around to a destination which is close to the starting place.

So long as the consequences of invention, which are preponderantly good, mount in a geometrical ratio the necessity for a mounting rate of invention to break up the bad effect of over regimentation is apparent. The immediate social consequence of failure to keep up a normal rate of invention is not only human regimentation but concentration of wealth and a sharper stratification of the social classes.

Industry is confronted with the immediate need of reorganizing what is called research along lines which will result in a tremendous increase in the number of important inventions per man per year.

Welding Reduces Motor Diameters



■ **High temperature and space limitations encountered with sheet steel coiler motors make it difficult to build a sufficiently small, self-ventilated motor. By using a welded steel frame, these motors built by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., were made smaller in diameter; at the same time improvements in design permitted shorter motors. The result is a decrease in overhang, vibration and maintenance;**

NEW METAL PRODUCTS

■ The Sterling Sawmaster is a new product of Sterling Machinery Corp., 411 Southwest boulevard, Kansas City, Mo. This motor-driven saw is of heavy, welded steel construction with a table top of heavy rolled steel plate. Timken roller bearings are used in the crankshaft. A 16-inch Disston saw blade is used and saw blade guard is of cast aluminum.

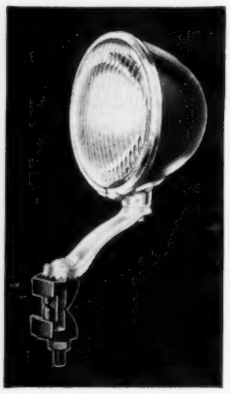
■ Chicago Pneumatic Tool Co., 6 East Forty-fourth street, New York, has announced the No. 10-E Light Mitchell diamond drill. Bearing areas have been increased 25 per cent or more. Gears are now of heat treated, cut steel. Swivel head frame is a steel casting and upper part of engine is covered by an aluminum housing.

■ Keyless roller skates are the latest metal product of Segal Safety Razor Corp., division of Segal Lock & Hardware Co., 261 Broadway, New York. The skates are adjustable in size and do not require keys for fitting to the shoe. Design features include construction of specially tempered steel, welded steel safety wheels and double, heavy duty ball bearings.

■ Two new lines of fabricated tubular steel products have been brought out by Metalart Co., Paterson,

N. J.—steel frame, folding arm chairs and automobile radiator grille guards. Approximately 26 feet of tubing are required for each chair of the type illustrated. Round cross tubes are of heavy gage tubing, ⅝-inch in diameter. Tubular radiator grille guard is made of 1-inch round steel tubing, curved into a semi-circle 17 inches in diameter. It has a heavy chromium plate and is held in place by cadmium plated bolts and nuts.

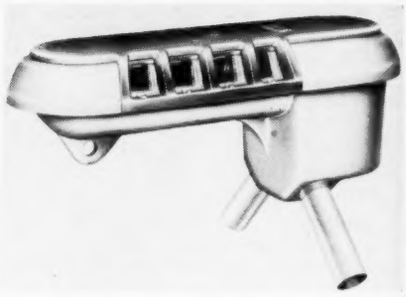
■ S & M Lamp Co., 119 West Thirty-sixth place, Los Angeles, has announced a new fog light, the No. 52C. It has an all chromium body



and is finished in black and chrome. Lens is crystal ribbed and gives a spread beam. Brackets for clamping on the light are malleable cast.

■ For splitting any kind of timber, logs or stumps, Hutchinson Mfg. Co., Pittsburgh, Pa., is manufacturing an explosive timber wedge of high grade forged steel attached by a patented welding and heating method to a 1¾-inch rolled steel bar. Fuse plug is inserted in the bar, powder and paper wad inserted and the wedge driven into the timber by explosion. Driving cap is of shock resisting, malleable iron. It is claimed that wedges and caps have been known to withstand as many as 1000 explosions.

■ To improve the safety of airplane landings, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has introduced a new metal runway marker that casts a horizontal beam instead of a vertical one. The units use a sodium-vapor lamp and penetrate fog well. With all but their elongated heads buried in the ground, they are constructed to withstand the full force of a heavy transport plane landing on them.



Lens is of the new, practically-unbreakable, Herculite glass.

■ A twin, reversible waffle iron was recently introduced by Manning, Bowman & Co., Meriden, Conn. The unit, which involves steel construction, aluminum waffle grids and durable nichrome heating elements, is also interesting to culinary artists in that batter may be poured on one side, the iron flipped over on its bakelite standards, and batter poured into the other side to make two waffles at once.

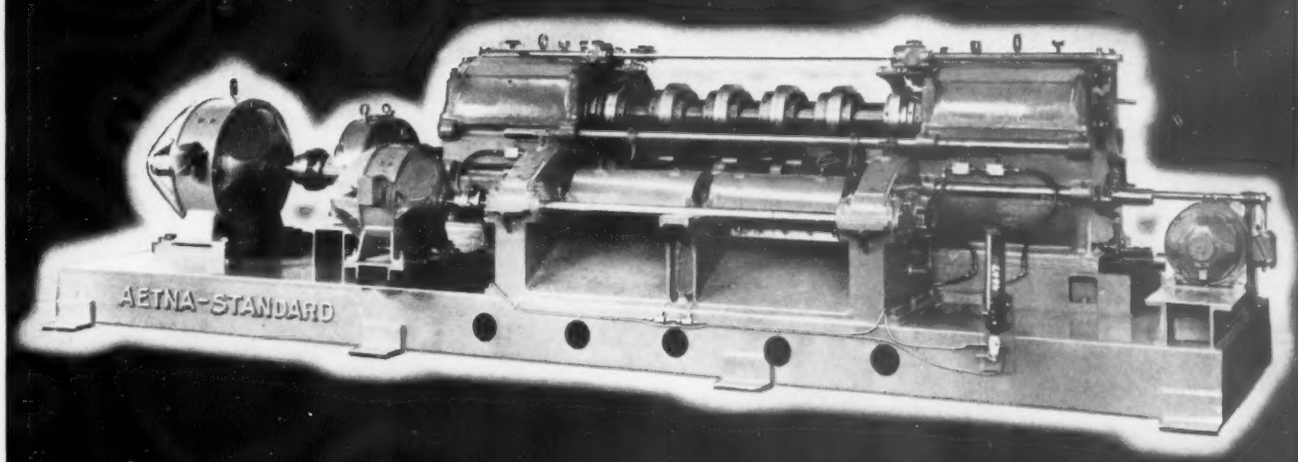
■ Standard Sanitary Mfg. Co., Box 1226, Pittsburgh, has introduced a new line of kitchen sinks known as the "Hostess." They are made of acid-resisting enamel over rigid cast iron and are available in a variety of models, each with matched fittings of brass with "Chromard" nontarnishing finish.

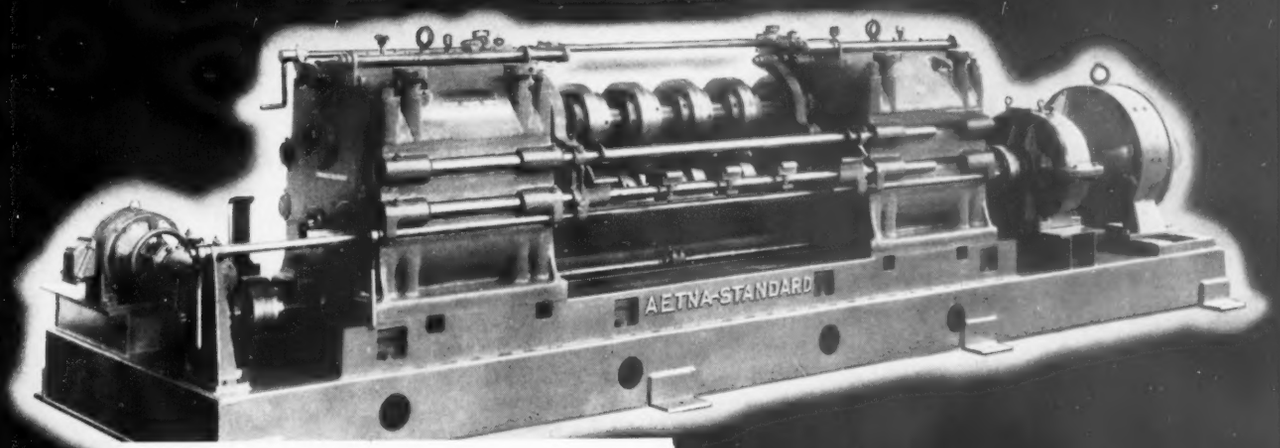
■ "Lockerators" are a new product of Durabilt Steel Locker Co., 456 Arnold avenue, Aurora, Ill. These refrigerated cabinets are arranged in tiers like so many ordinary lockers, but are intended for the storage of meat, fruit, and vegetables. Capacity of each section is 300 pounds. Door locks provide lessees of the lockers with protection.

■ A new line of steel desks is being built by Art Metal Construction Co., Jamestown, N. Y. Their construction involves, besides considerable steel, legs which are malleable iron castings. These legs, used for light weight, strength, and smooth surface are hollow and cast to a thickness of ⅛-inch. They are bolted to the desk leg pedestal.

■ Harnischfeger Corp., Milwaukee, has announced the new P & H model 225 excavator. The machine is a ¾-yard capacity unit and noted for its speed in dirt moving. It is built of alloy steels and is of all welded construction.

SLITTERS





The new Aetna-Standard Side Trimming Slitter shown above, is designed to give instant control for width without sacrificing any convenience for multiple slitting. Removable arbors, which will materially decrease lost time in changing set ups, are included.

Completely enclosed drive and adjusting parts, new scrap cutting and guiding equipment, as well as many other new features are provided to assure greater accuracy in slitting and side trimming.

The AETNA-STANDARD ENGINEERING COMPANY
Youngstown, Ohio

CONSULTANTS · DESIGNERS and BUILDERS TO THE STEEL AND NON FERROUS INDUSTRIES

Look For Surprising Developments In Mining and Metallurgy Fields

(*Concluded from Page* 19)

cerned with chemical content since most of the white, gray and mottled iron castings merely served ornamental purposes.

The blast furnace as now operated is a relatively efficient apparatus compared to other chemical or metalurgical equipment, it was declared by J. B. Austin, research laboratory, United States Steel Corp., Kearny, N. J. While improvements in design, in control of operation to give a uniform product, and in reducing heat loss by radiation and conduction are to be expected, he said, there is little hope of making a substantial reduction in coke consumption under that achieved by the best modern practice. The modern blast furnace is over 90 per cent efficient in the utilization of coke, Mr. Austin pointed out.

Despite increasing technical importance of iron-chromium-manganese alloys, little published information regarding their constitution has been available. However, an extensive investigation has been conducted at Union Carbide & Carbon Research Laboratories Inc., Niagara Falls, N. Y. The results of this investigation were prepared jointly by C. O. Burgess and W. D. Forgeng and presented at one of the sessions which was devoted to the constitution, treatment and properties of steel.

Provides Austenitic Structures

Manganese, in common with nickel, promotes the formation and stability of austenite (solution of carbon or iron carbide) in iron-chromium alloys. It was found, however, that the addition of manganese is less influential than an equal amount of nickel in creating and preserving a completely austenitic structure. For example, while low-carbon 18 per cent chromium-8 per cent nickel alloy can be rendered fully austenitic, an 18 per cent chromium alloy of low carbon content in which 8 per cent manganese takes the place of the nickel will not be made completely austenitic by any heat treatment but will consist of alternate grains of austenite and ferrite or pure iron.

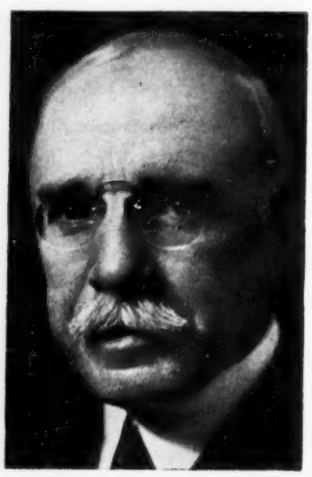
Charles R. Austin, professor of metallurgy, Pennsylvania State college, State College, Pa., in presenting a study of the difference in behavior of high carbon steels on quenching, found that all specimens reacted identically on quenching after heating for 5 hours, whereas after 75 hours treatment quenching resulted in considerable difference in hardness.

M. L. Samuels, metallurgist, Battelle Memorial institute, Columbus, O., pointed out that it now is possible to buy steels with grain growth determined according to A.S.T.M. specifications. Grain growth has merited the increasing attention of the metallurgist since it is so closely allied with performance of steels, as for instance the deep-drawing qualities of steel sheets. Mr. Samuels has found that the rapidity of grain growth is determined by the rate of cooling from the normalizing furnace, the greatest growth resulting where cooling is the fastest.

Investigates Internal Friction

A considerable number of experiments in recent years have definitely established the fact that the internal friction of a metal under cyclic stress is a property that is highly "structure sensitive." Because of this fact, it has been suggested that an observation of this property, which often is referred to as "damping capacity," might be a useful indicator of structural changes taking place when a metal or alloy is subjected to any number of metallurgical treatments.

In a discussion presented jointly by R. A. Flinn Jr., research laboratory, International Nickel Co. Inc., Bayonne, N. J., and John T. Norton, associate professor, department of metallurgy, Massachusetts Institute of Technology, Cambridge, Mass., it was pointed out that damping capacity is of interest to the metallurgist, who often is in search of various external indications of changes taking place in the interior of the metal. Two methods now are available for measuring damping capacity and this function now can take its place along with measurement of mechanical properties, electrical resistivity, dilation and lattice parameters in the service of the physical metallurgist.



John V. W. Reynders
Made honorary member, American Institute of Mining and Metallurgical Engineers

Plastics Are Classified And Properties Compared

■ Comprehensive discussion of the various types of molded plastics now in use, together with a comparison of some of their properties, was presented by G. M. Kline, national bureau of standards, Washington, before 250 members and guests of the Detroit chapter, American Society for Metals, Feb. 14.

Mr. Kline grouped plastic materials into their various classes—synthetic resins, natural resins, cellulose plastics, protein plastics and soy bean plastics. Synthetics may be subdivided further into the phenol formaldehydes and the urea formaldehydes, as well as the vinyl resins and several lesser used types.

The vinyl resins are used in making laminated glass, in certain coatings and for phonographs. Experiments in Germany have shown them successful for some types of plant piping where temperatures are below 50 degrees Fahr.

Natural resins include shellac, rosin, pitch and asphalt. Experiments are under way to extract a thermosetting resin from shellac for molding purposes.

Improvements Under Way

Cellulose plastics include the cellulose nitrates, acetates, mixed esters, ethers and regenerated cellulose or cellophane.

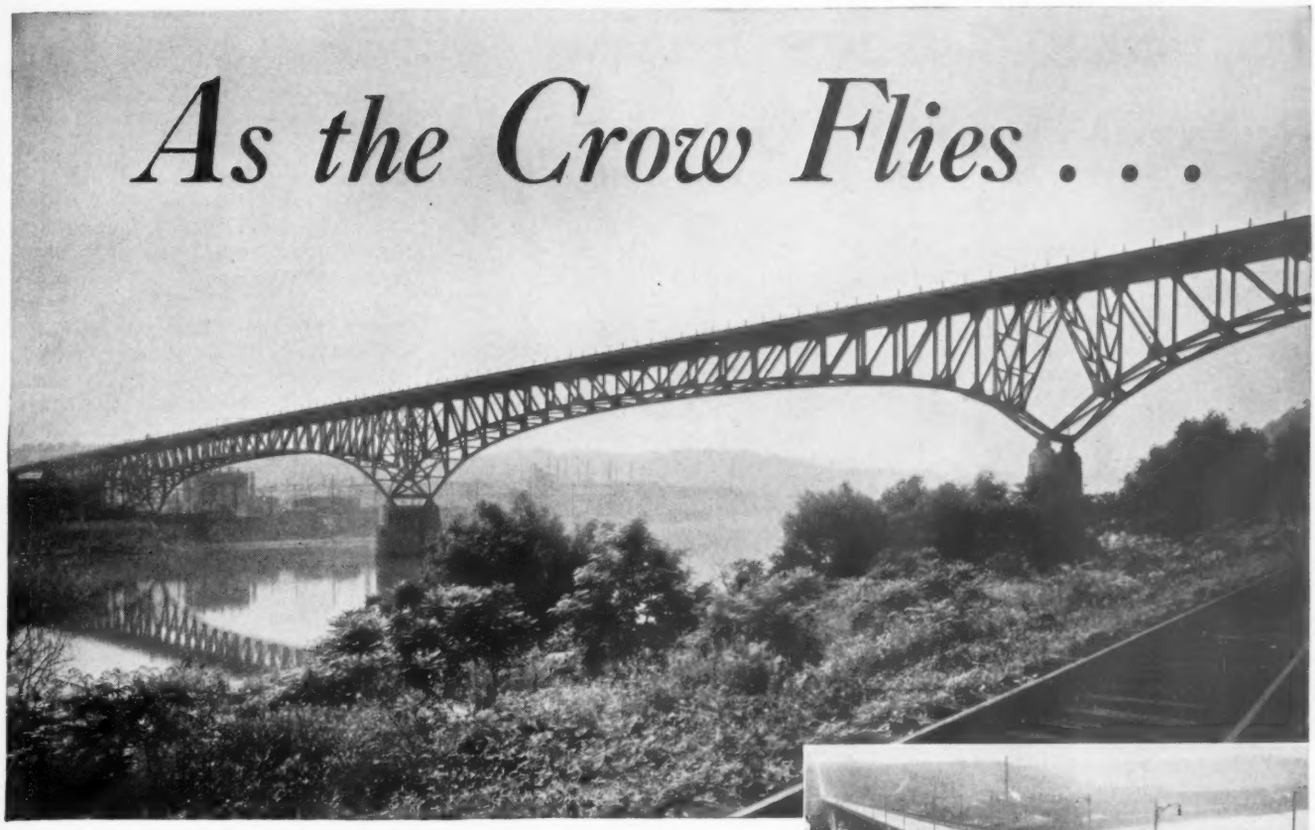
Protein type plastics include the familiar casein or "milk" plastic used widely for making buttons. This type is used more widely abroad than in this country.

Soy bean plastics comprise soy bean meal mixed with phenol and formaldehyde, although research is now under way to produce a pure soy bean resin without additional phenol.

Mr. Kline showed results of experiments the bureau has made on exposure of the transparent plastics, to note effects of ultraviolet light and other weathering agencies. Data from these tests are assisting manufacturers to produce more resistant materials.

Preceding Mr. Kline's address were five roundtable discussions centering on the subjects of inclusions in steel, induction hardening, gears, high-speed steel and rolled brasses and bronzes.

As the Crow Flies . . .



The new High-Level Bridge speeds and safeguards traffic between Pittsburgh and Homestead

PUT IN service on November 20, 1937, the Pittsburgh-Homestead Bridge eliminates two sharp-angle turns, four major railroad grade crossings, a tortuous hill roadway, and the old narrow bridge across the Monongahela. From the very heart of Homestead's business section — across the river—to the high bluff on the Pittsburgh side, this new 3100-ft. crossing provides a modern, direct traffic artery between two of Pennsylvania's industrial centers.

The main structural group spanning the river is a continuous type Wichert truss unit of 4 spans with end and channel spans respectively 291 and 533½ feet in length. Adjoining this unit, and a part of the Homestead approach, is a second Wichert continuous truss unit of 6 spans with 128-ft. end and 163-ft. intermediate spans. The remainder of the Homestead approach is comprised of 7 plate-girder spans varying in length from 63 to 100 feet. The bridge provides a 40-ft. concrete roadway framed with Carnegie-Illinois I-Beam-Lok, and two 8-ft. cantilevered sidewalks. Silicon steel was extensively used in the trusses and in column bents designed to flex under longitudinal loads.

Expressive of structural steel's adaptability to pleasing lines, the Homestead bridge takes rank with the many other impressive Pittsburgh structures. It was designed and built under the supervision of the engineers of Allegheny County, and the entire steel superstructure was fabricated and erected by American Bridge Co.

AMERICAN BRIDGE COMPANY

General Offices: Frick Building, Pittsburgh, Pa.

Baltimore Boston Chicago Cincinnati Cleveland Denver Detroit Duluth
Minneapolis New York Philadelphia St. Louis

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

Improved Design For Rotary Hearth Furnaces

■ A WATER-SEALED, rotary hearth forging furnace, developed several years ago by Gas Machinery Co., Cleveland, has found increased applications due to its fuel economy, low labor and maintenance expense. It produces less scale on the heated material because of the effectiveness of the seal, especially at low rates of firing with attendant reduced furnace pressures. This design is being used in rotary furnaces with tables varying in size from 2½ to 16-foot diameter.

Although it is practical and economical there are many applications where heating billets for forging produces quantities of slag which collect on the rotating hearth. The problem of removing this slag and maintaining it in a molten condition during removal has led to trial of many schemes. These have met with limited success because of the rapidity with which the slag solidifies in the ordinary slag pocket or runout. This difficulty has not been confined to rotary hearths alone but is encountered in pusher and other continuous types as well.

A design recently evolved by Gas Machinery Co. makes slag removal from the hearth a comparatively simple process. In addition, this design provides another important function. In event slag accumulates and freezes up between the rotating hearth and stationary side wall, an adjustment between these refractory surfaces quickly frees the accumulation for removal.

Fig. 1 shows a section through this furnace which reveals the simplicity and ruggedness of this design. Furnace flue off-takes are built into the center of the clearance space between the table and the side wall. Venting of hot furnace gases at this point will maintain temperatures well above the freezing point of any accumulated slag. As the molten slag forms in sufficient quantity on the hearth, it overflows the sloping sides of the table and collects in the water trough where it is quenched and instantly shattered. Its removal from the trough can be accomplished continuously by a slag removing plow as indicated in Fig. 1 or by periodic removal in which case it is only necessary to bring the furnace up to temperature and rake the slag off into the water trough where it is easily removed.

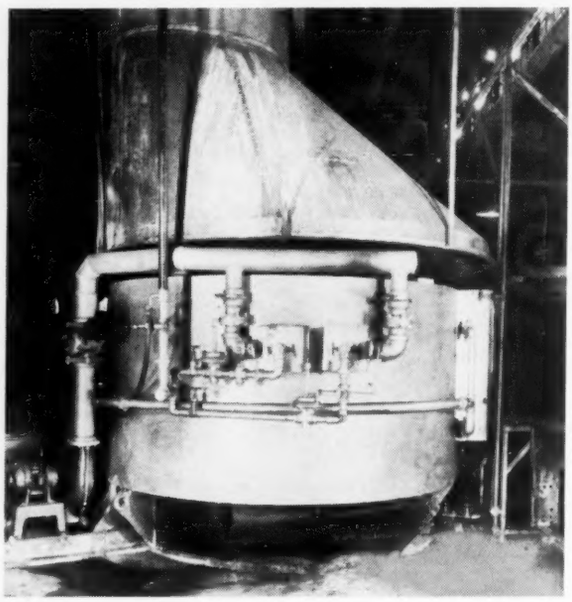
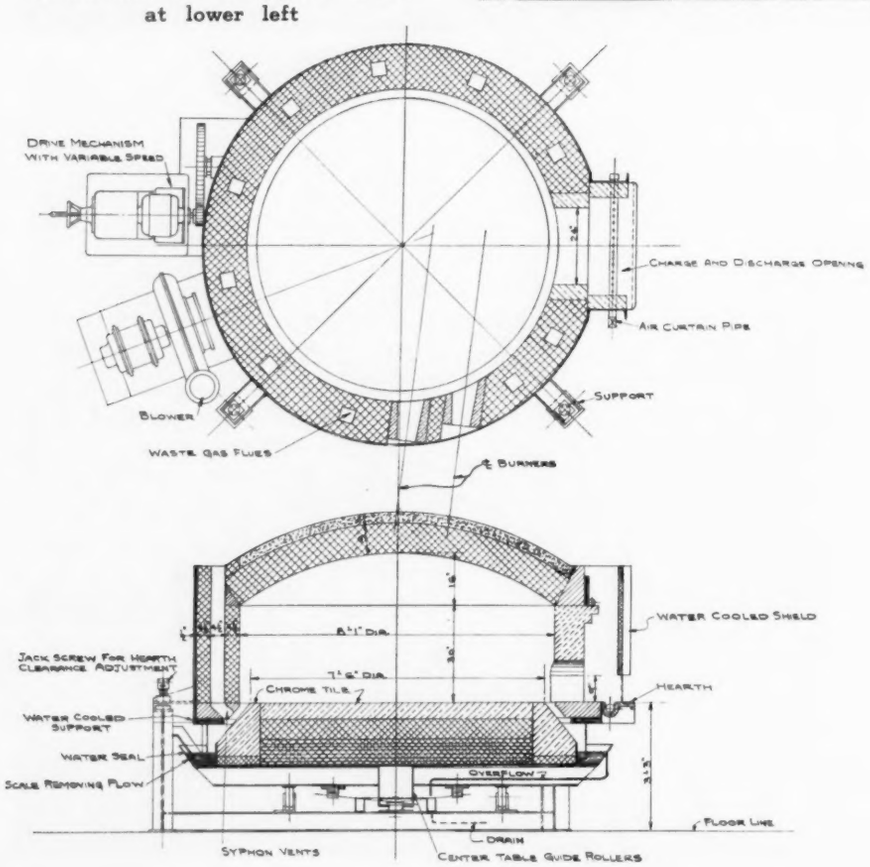


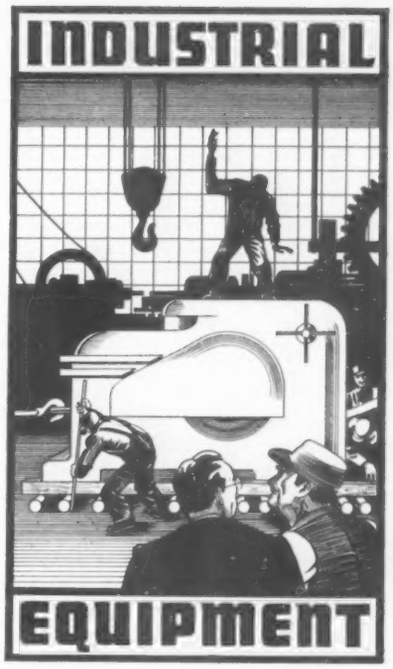
Fig. 2—Standard rotary hearth forging furnace made by Gas Machinery Co., Cleveland

Fig. 1—Top is plan view and bottom is cross section through new rotary hearth forging furnace designed for easy slag removal which is made continuous by use of the scale removing plow shown at lower left



This design has been combined with Gas Machinery Co.'s standard rotary forging furnace with patented water seal and syphon vents, making units well adapted to fit into the general production line. These furnaces operate continuously to turn out heated billets having a light scale that flakes off under the first blows of the hammer.

Other advantages include high fuel economy and need for only one attendant to load and discharge entire output. Fig. 2 shows one of the company's standard rotary forging furnaces installed in the plant of a manufacturer having two such units for continuous production of forging billets.

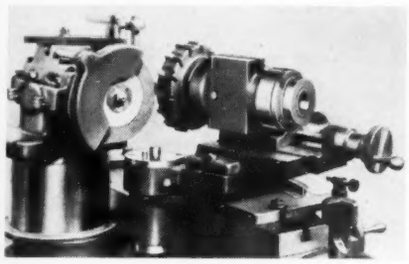


Grinding Attachment Eliminates Corner Wear

■ Cincinnati Milling Machine Co., Cincinnati, has introduced a radius grinding attachment for use on its No. 2 cutter and tool grinder. Attachment is said to eliminate sharp corner wear in face and end mills.

With the aid of this attachment, a ¼ circle arc of any radius up to 1 inch may be produced on end mills and face mills up to 12 inches in diameter, it is claimed. Four principal parts make up the attachment which includes the swivel housing which is fastened to the machine table, swivel table, top plate, and work-head support. Work-head, draw-in bolt, and collets are part of the regular machine equipment.

Adjustment of the cutter to correct radius is obtained by means of two hand-wheel operated screws located at right angles to each other. By moving both adjusting screws the same amount, attachment is set for grinding a radius which



This radius grinding attachment is claimed to produce a ¼ circle arc of any radius up to 1 inch on end mills and face mills up to 12 inches

will match the face and periphery of the cutter. Antifriction bearings in the swivel trunnion and a laminated roller bearing on the covered track assure a circular motion of the swivel table around its pivot. Face, radius and periphery of cutter may be ground without removing attachment.

Laboratory Thermometer Is Encased in Steel

■ Weston Electrical Instrument Corp., Newark, N. J., has introduced a new type laboratory thermometer provided with a dial and pointer scale encased in stainless steel.

Unit is the first dial-type thermometer with an all metal temperature element sufficiently accurate for scientific use, it is said. Pointer is actuated by means of an internally balanced double coil of thermostatic bimetal sealed in the lower 1½ inches of the seamless stem. When stem is immersed to a depth of 1½ inches in liquid, 3 inches in gas or vapors, dial reads temperature values without necessity for stem correction.

Accuracy of unit is guaranteed to ½ to 1 per cent over entire scale. Dial markings are spaced for maximum readibility on the metal scale plate and are not subjected to obliteration from solutions under test, as is the case with stem gradations. Low temperature values are not obscured in dark-colored or viscous solutions.

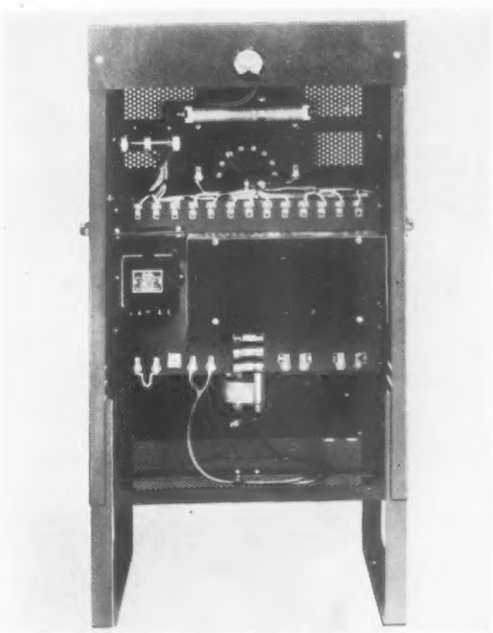
Stem of unit which encloses temperature element is ⅛-inch diameter, high strength, seamless tubing of chromium-nickel alloy steel. It is rugged and corrosion-proof to all but few laboratory reagents. Construction of temperature-sensitive coil is also inherently rugged and shock-proof. Reasonable overrange temperature will not affect the accuracy of unit. Applications include temperature measurement in educational and industrial research laboratories, control laboratories, hospitals and general scientific use.

Controlled Rectifier Charges Automatically

■ Electric Storage Battery Co., Allegheny avenue and Nineteenth street, Philadelphia, has introduced an Exide, TVR relay controlled, fan-cooled, copper oxide rectifier which provides an automatic method of charging batteries of the smaller sizes in control bus, oil switch operation, emergency lighting and similar services.

With little attention and adjustment, the rectifier conforms to the conditions surrounding the battery with the precision surpassed only by that possible with skilled supervision in constant attendance, it is claimed. It controls and co-ordinates changing and inconstant factors and permits battery to regulate its own charging according to its needs. This, it is said, provides an economical method of charging and eliminates danger of overcharging, thus adding to the life of the battery.

Unit is designed for use in combination with 60-cell storage batteries having an 8-hour capacity from 80 to 240 ampere-hours, depending upon the constant connected, signal lamp load. Through a synchronous time-switch, rectifier automatically puts the battery on charge at definite intervals. When complete state of charge is reached, charging is discontinued automatically. If there has been an emergency discharge, rectifier will oper-



Control of this Exide rectifier is affected by the on-off system as incorporated in the TVR relay control in which the output of the rectifier alternates between maximum and zero

ate until the recharge is complete even if this should require several hours of continuous charging, after which normal periodic operation is resumed.

The rectifier consists of several component parts assembled in a steel cabinet. It is designed around the Exide TVR voltage relay, which is an electro-magnetic contacting device. Hourly increase in the average battery voltage to about 2.33 volts per cell minimizes necessity for giving equalizing charges with the control rectifier. Other features of the unit include a copper oxide rectifier element, a transformer and a ventilating fan and motor.

Coils Ground Through Use of Abrasive Belts

■ Mattison Machine Works, Rockford, Ill., has introduced a continuous strip grinder, No. 464, which is designed for grinding strip coil through the use of factory coated abrasive belts.

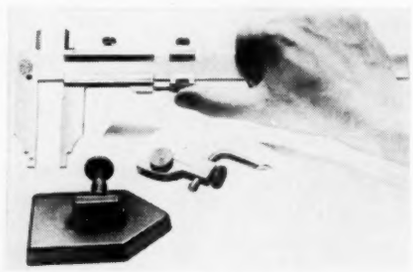
Power driven reels of grinder are placed at each end of the machine from which the strip passes over guiding rolls and the work support roll. The work support roll is air-operated with quick movement for disengaging the work from the belt. Enough movement is provided to allow extra room for passing the strip under the belt in loading.

Grinding roll is cushioned and has an adjustable grinding tension. Belt can be driven from both ends to comply with the direction the strip is traveling. The flexing of the strip as it passes over the support roll and the point contact of the grinding roll enables a fast-cutting action, and duplicates the action of the wide belt grinders on wide sheets.

Strips that show any imperfections are handled on the grinder after they have gone through the hot rolling, pickling, annealing and cold reducing processes, or after cold reducing operations when the strips will not pass inspection before going through the annealing and pickling processes.

Caliper Is Combined With Height Gage

■ George Scherr Co., 128 LaFayette street, New York, has added to its line of measuring tools a caliper,



Steel point of this Mauser caliper is adjustable, making it possible to set height gage at an even figure on the scale when starting to measure

known as type No. 537, which comes with a height gage combination.

Caliper is available in three sizes with measuring capacities of 7, 9 and 11 inches. A base is furnished which, if attached by means of a screw and accurately tapered center at the end of one jaw, transforms the caliper into a height gage, graduated in 1/128 and 1/1000 inches.

Base of the instrument is heavier and larger in area than usual so that height gage will rest firmly on the surface plate without possibility of tilting. The vernier caliper also has two knife edges which are practical for lay-out work. These are also useful for measuring distances between holes and for measuring root diameters of gears.

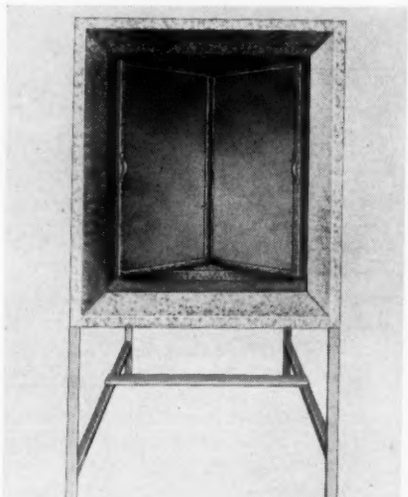
The scribing attachment is a separate unit and may be firmly attached to the upper jaw. An advantage of this unit is that the steel point is adjustable, making it possible to set the height gage at an even figure of the scale when starting to measure. This eliminates much calculation and saves time.

Spray Booth Designed To Reclaim Loose Flock

■ DeVilbiss Co., Toledo, O., has placed on the market an improved spray booth which is designed to meet the requirements encountered in the application of flock.

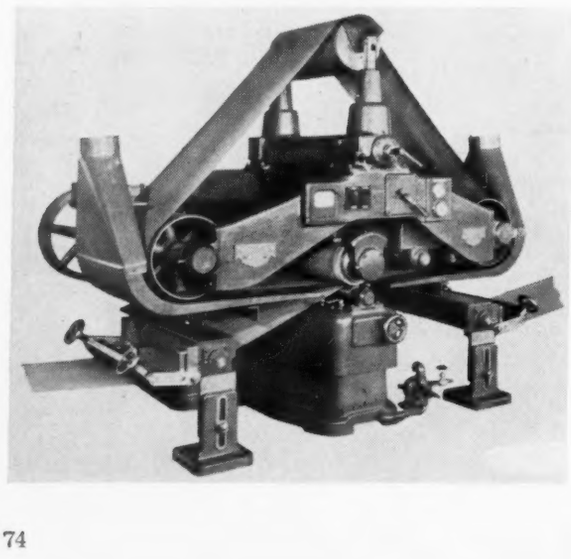
Booths range in size from 3 to 10 feet frontal width. They are of the direct exhaust type and permit concentration of flock-spraying operations in one location, reclaiming sprayed material not applied to the articles coated and preventing this light material from scattering throughout the finishing room.

Metal curtains are supplied for the top and sides of the booths. An opening in the floor, directly in front of the screen and extending the entire width of booth, allows for the collection of overspray in the recessed chamber beneath. All booths are provided with the required number of sprinkler openings.



Besides permitting the concentration of flock-spraying operations in one location, this DeVilbiss spray booth reclaims sprayed material not applied to the articles coated and prevents this light material from scattering

A hinged door at each end provides access to the inside of collection chamber, allowing the removal of accumulated material. Removable cheese cloth screens at rear of booths collect the flock and prevent it from passing out the exhaust pipe. Booths from 3 to 6 feet are of welded construction.



Power driven reels of this No. 464 Mattison continuous strip grinder are placed at each end of the machine from which the strip passes over guiding rolls

Switcher Crane Does Three Major Jobs

(*Concluded from Page* 54)

shell bucket were put to work to do some light excavating around the top of the well. Also, on this same job, the crane was of material assistance in handling the various pump parts during the installation.

Occasionally this same unit is used to handle ashes from a pile to a motor truck. While there has not been much opportunity for it as a snow-removing accessory, it is a useful reserve machine for such purposes and is depended upon for loading snow into dump trucks whenever necessary.

As a unit for car switching, the machine has proved decidedly valuable. As a single freight car loaded with scrap steel constitutes a heavy load, it was found advantageous to add a total of approximately 3000 pounds of dead weight to the crane truck. This additional weight is reported to have increased the traction enough so no difficulty has been experienced in moving these heavy car loads. Furthermore, sanding of tracks is unnecessary, as the better traction prevents the truck wheels from spinning. This extra weight was added in the form of ballast boxes, one at each end of the crane just in front of the wheels.

Small Industrial Truck

■ What is said to be the smallest 3-wheel industrial tractor has been placed on the market by one of the electric industrial truck manufacturers. It is designed to permit operation in very congested areas in plants and warehouses. Trailer couplers may be installed on either end of the machine at convenient heights. Capacity is 300 pounds draw or pull at three miles per hour. The tractor weighs 1500 pounds without the battery.

Future Profit Margins Depend on Management

■ *Managerial Control*, by John G. Glover and Coleman L. Maze; cloth, 574 pages, 5½ x 8 inches; published by the Ronald Press Co., New York; supplied by STEEL, Cleveland, for $4.50; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

How future profit margins can be maintained without relative increases in selling prices is the theme of this work. The authors believe today's rising costs come from great basic changes which will tend also to make future costs even higher. The authors now believe the answer to this problem can be found in better balance in organization, increased individual effectiveness, elimination of waste, more effective planning through research, dependable and inclusive standards and records and reduction of costs through new and improved methods and instruments of managerial control.

They stress setting standards and measuring actual accomplishment as a necessary basis for control, point out methods for determining causes for variations between planned and actual accomplishment and indicate the more important causes of such variations, as well as their underlying reasons.

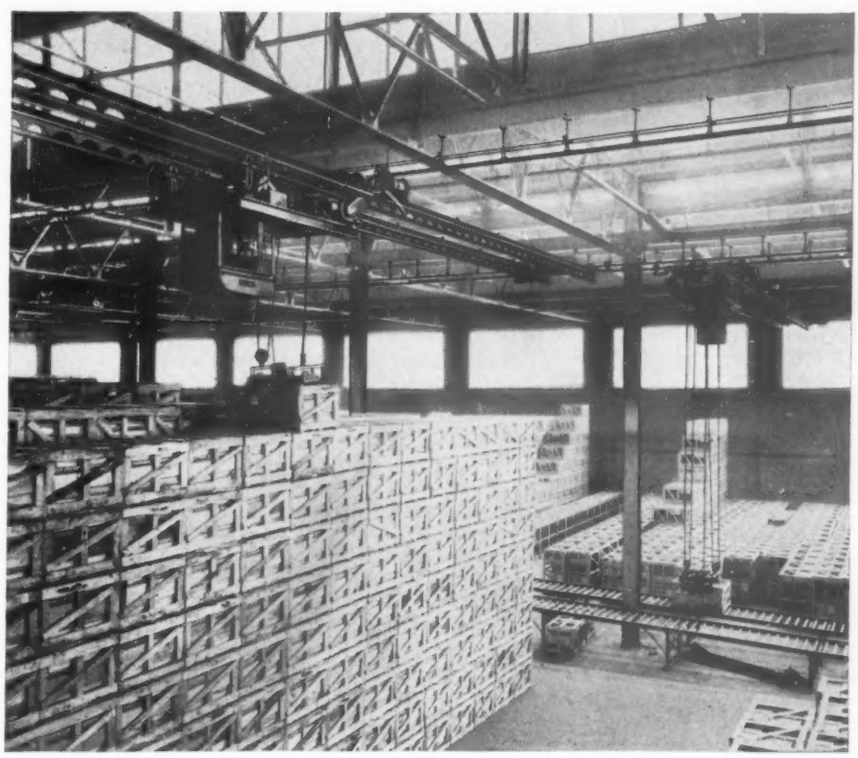
Scaffold Is Versatile

■ A rolling scaffold, designed to facilitate the installation of modern glass blocks in office buildings equipped for air conditioning, was recently developed by Carrier Corp., Newark, N. J.

Scaffold allows 8 sets of workmen to operate simultaneously on 8 windows at four different levels.

CLEVELAND TRAMRAIL

MATERIALS HANDLING EQUIPMENT



• Two, three runway, Cleveland Tramrail double girder, cab controlled cranes and motor operated crate grabs serve this warehouse, which was built around a planned materials handling system (a combination of tramrail and roller conveyors).

ALSO BUILDERS OF

CLEVELAND CRANES

FOR EVERY INDUSTRY

CLEVELAND TRAMRAIL

DIVISION OF

THE CLEVELAND CRANE & ENGINEERING CO.

1125 Depot St.

WICKLIFFE, OHIO

Or consult your phone directory under Cleveland Tramrail.

RECENT PUBLICATIONS OF MANUFACTURERS

Copies of any of the literature listed below may be obtained by writing directly to the companies involved, or by addressing STEEL, in care of Readers' Service Department, 1213 West Third Street, Cleveland

Hauling Equipment—Atlas Car & Mfg. Co., Cleveland, has issued bulletin 1250 containing many illustrations of the various types of industrial haulage equipment manufactured by the company.

Circuit Breakers—General Electric Co., Schenectady, N. Y., has issued a booklet describing its line of air circuit breakers. Many illustrations, and specifications are embodied in the booklet.

Production Grinders — Sawyer Electrical Mfg. Co., Los Angeles, has issued a folder describing its types of heavy-duty grinders. The folder also contains illustrations, specifications and engineering data.

Furnaces—W. S. Rockwell Co., 50 Church street, New York, has issued catalog 348 covering its line of portable heat-treating and carburizing furnaces. Catalog also contains specifications, illustrations and technical data.

Eyelet Machines—Waterbury Farrel Foundry & Machine Co., Waterbury, Conn., has published an 8-page booklet describing its line of crank eyelet machines. Illustrations, charts and technical information are also embodied.

Dust Hazards—W. W. Sly Mfg. Co., Cleveland, has issued a booklet entitled, "Picking Profits Out of the Air." The booklet outlines the harm of dust to machinery and operators and gives some suggestions on how to overcome the problem.

Electric Appliances — Manning Bowman & Co., Meriden, Conn., has published a 40-page catalog describing its line of electric appliances. The booklet contains many illustrations of the various appliances, with descriptions and specifications.

Strainers — Sheffler - Goss Co., Drexel Bldg., Philadelphia, has issued bulletin 100 which illustrates and describes the Duoflow strainer. The bulletin contains specifications and engineering data of the strainers besides a price list.

Steam Jets—Duriron Co., Dayton, O., has released a bulletin describing steam jets, ejectors, tank outlets and spray nozzles. The bulletin contains illustrations and dimension drawings. Engineering information embodying the selection of correct sizes of jets is also included.

Bolts & Nuts—Pheoll Mfg. Co., 5700 Roosevelt road, Chicago, has issued a 108-page catalog containing information concerning the company's line of screws, bolts and nuts. Included is a special reference section devoted to standard and special screw threads.

Trucks—Dether Engineering Co., 4081 Avalon boulevard, Los Angeles, has issued a small folder entitled, "Truck with Safety, Ease and Speed." The folder contains illustrations and specifications embodying safety barrel trucks. Directions for use of trucks are also included.

Chains & Conveyors—Chain Belt Co., Milwaukee, has issued its latest copy of its regular publication, "Rex World." The publication, for the first time, contains many ilustrations of the plant and the operations involved in manufacturing chains and conveyors.

Speed Reducers—Stephens-Adamson Mfg. Co., Aurora, Ill., has published catalog No. 68 describing its line of variable speed reducers. Four types of reducers are described including the new motorized and differential units. Catalog also contains illustrations and engineering data.

Malting Equipment—Foote Bros. Gear & Machine Corp., 5301 South Western boulevard, Chicago, has published bulletin 801 entitled, "Saladin Malting Plants and Equipment." The 24-page bulletin contains malting plant layouts, malt house equipment and many illustrations. A price list is also included.

Facing Machines—Ex-Cell-O Corp., 1226 Oakman boulevard, Detroit, has issued its publication, "Tool Tips," for the month of January. The publication introduces the company's latest precision facing, turning and grooving machine besides latest developments on other products. Company news is also included.

Graders—Caterpillar Tractor Co., Peoria, Ill., has published a booklet embodying a description of the mechanical features of Caterpillar blade graders and advantages of the type of construction used. Illustrations of specific work accomplished by the machines are also included.

Lighting Units—Lighting division, Westinghouse Electric & Mfg. Co., Cleveland, has issued a folder describing the construction and application of the Millite lighting unit for heavy industries. Tables of mounting heights, spacing and resulting footcandle intensities are also embodied.

Joints & Rails—Bethlehem Steel Co., Bethlehem, Pa., has released two bulletins. One, entitled "Bethlehem Road Joints," contains specifications and a description of road joints developed for road building, and the other entitled, "Bethlehem Guard Rail," contains specifications of the rope wire used for guard rails on the highways.

Copper Steel—United States Steel Corp., 434 Fifth avenue, Pittsburgh, has published a 16-page booklet entitled, "A Little Copper in Steel Gives a Lot of Protection." Featured in the booklet are the latest results obtained by the American Society for Testing Materials. Applications of copper steel in various industries are also described.

Conveyors — Mathews Conveyer Co., Ellwood City, Pa., has published a 32-page booklet entitled, "Natural Laws Applied to Production." The booklet contains many illustrations showing the 17 types of conveyors manufactured by the company. It also contains information upon the laws of production, materials handling and the function of the management.

Brazing Bus Bars

(*Concluded from Page* 51)

brazed along one side of the joint as shown in Fig. 5. These plates were cut from the short ends of the regular bars and were made somewhat longer than necessary to provide a lap on each bar three times the thickness. Although there was little necessity for this increased length, it did give more space for attaching clamps.

Although this second job involved only 10 tons of bus bars, it demonstrated that brazing offers no particular difficulties as this work was done by a man who received only a brief instruction from one of the oxygen manufacturers' service men on how to handle a torch.

While these installations had to do primarily with bus bars carrying heavy currents at low voltages, the method used also has a broad field of application in other ranges such as encountered in power plants, substations and similar fields.

Reaffirmed Steel Prices Steady Market

Second Quarter at Level of Past Year; Scrap Down Sharply

MARKET IN TABLOID

DEMAND . . . . *Some increase shown in all lines.*

PRICES . . . . *Scrap price drops sharply.*

PRODUCTION . . *Operating rate advances 1 point to 31 per cent.*

SHIPMENTS . . *February promises to exceed January.*

■ ANNOUNCEMENT by the leading interest, followed by other producers, that its prices on hot-rolled products for second quarter would be unchanged from the current level and that on cold-finished sheets the recent reduction would apply has removed one cause of uncertainty from the situation.

The present schedule of prices on hot-rolled steel has been in effect since March 5, 1937, being reaffirmed for each succeeding quarter. In that period buyers have expected an increase at some times and a decrease at others. In recent weeks it has been apparent that some consumers have held back buying as far as possible until the announcement had been made. Such tonnage as had been deferred on this account should begin to appear in the market soon. Some observers believe this will be of substantial proportions.

Adjustments in extras for pickling of hot-rolled sheets have also been announced, following the recent decrease in the price of cold-rolled sheets as a step toward restoring the former relation of these competitive materials, largely used in automotive building.

Slightly better buying of steel in nearly all lines is evident, consumers apparently finding demand for their products in a larger degree. This is not marked, but in the experience of some large producers it is believed sufficient to give a larger total production in February than in January, despite the shorter month.

Railroad buying, delayed by uncertainty as to the rate decision, apparently can not be held back entirely and occasional orders for equipment are coming out. It is known that important tonnages of rails have been scheduled and it is believed these will be placed as soon as the rate situation is cleared.

Steel production has become fairly stabilized at a rate dictated by current requirements of consumers at a level close to 30 per cent. Variations from this level for the past six weeks have been only a point or two, indicating buying is steady at the low level. Last week the national rate advanced 1 point to 31 per cent as slight changes in schedules were made at various points. Pittsburgh moved down 2 points to 29 per cent, Cincinnati declined 6 points to 22 per cent and Chicago half a point to 24.5 per cent. This is equal to the lowest rate at Chicago since the first of the year. Youngstown moved up 6 points to 29 per cent, Buffalo advanced 2.5 per cent to 21 per cent, Detroit 1 point to 48 per cent and St. Louis 7 points to 28 per cent. Operations were unchanged at Eastern Pennsylvania at 30 per cent, Wheeling at 44 per cent, Cleveland at 33, Birmingham at 61 and New England at 27.

Automobile assemblies last week were 59,100, or 1290 more than in the preceding week. General Motors produced 21,560, compared with 20,950; Chrysler gained 800 to 9850; Ford made 19,265, compared with 20,760 the week before and the independents assembled 8425, against 7050 in the preceding period.

Decided weakness in scrap at Chicago and Philadelphia lowered quotations sharply and resulted in the composite of steelmaking scrap receding 42 cents to $13.33, the level of mid-December. This is the sharpest drop since the early part of November. Effect of the scrap recession carried the iron and steel composite down 6 cents to $38.88. The finished steel composite is unchanged at $61.70.

STEEL's London cable brings information that demand for pig iron in Great Britain has relaxed and some tonnage is available for export. Demand for steel continues strong with no delivery short of third quarter on current bookings. January imports of iron and steel products gained over December and exports were considerably lower. Continental exporters find demand much smaller and are curtailing production. Conversations looking to closer relations of American exporters of steel products with the European steel entente continue as the effort is made to bring about a wider range of products on which control can be exercised.

COMPOSITE MARKET AVERAGES

	Feb. 19	Feb. 12	Feb. 5	One Month Ago Jan., 1938	Three Months Ago Nov., 1937	One Year Ago Feb., 1937	Five Years Ago Feb., 1933
Iron and Steel	$38.88	$38.94	$38.94	$38.95	$38.96	$36.74	$27.94
Finished Steel	61.70	61.70	61.70	61.70	61.70	55.92	45.35
Steelworks Scrap ..	13.33	13.75	13.83	13.85	13.32	19.19	6.33

Iron and Steel Composite:—Pig iron, scrap, billets, sheet bars, wire rods, tin plate, wire, sheets, plates, shapes, bars, black pipe, rails, alloy steel, hot strip, and cast iron pipe at representative centers. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Heavy melting steel and compressed sheets.

COMPARISON OF PRICES

Representative Market Figures for Current Week; Average for Last Month, Three Months and One Year Ago

Finished Material

	Feb. 19, 1938	Jan. 1938	Nov. 1937	Feb. 1937
Steel bars, Pittsburgh	2.45c	2.45c	2.45c	2.20c
Steel bars, Chicago	2.50	2.50	2.50	2.25
Steel bars, Philadelphia	2.74	2.75	2.75	2.49
Iron bars, Terre Haute, Ind.	2.35	2.35	2.35	2.10
Shapes, Pittsburgh	2.25	2.25	2.25	2.05
Shapes, Philadelphia	2.45½	2.46½	2.46½	2.25½
Shapes, Chicago	2.30	2.30	2.30	2.10
Tank plates, Pittsburgh	2.25	2.25	2.25	2.05
Tank plates, Philadelphia	2.43½	2.44½	2.44½	2.23½
Tank plates, Chicago	2.30	2.30	2.30	2.10
Sheets, No. 10, hot rolled, Pitts.	2.40	2.40	2.40	2.15
Sheets, No. 24, hot ann., Pitts.	3.15	3.15	3.15	2.80
Sheets, No. 24, galv., Pitts.	3.80	3.80	3.80	3.40
Sheets, No. 10, hot rolled, Gary	2.50	2.50	2.50	2.25
Sheets, No. 24, hot anneal., Gary	3.25	3.25	3.25	2.90
Sheets, No. 24, galvan., Gary	3.90	3.90	3.90	3.50
Plain wire, Pittsburgh	2.90	2.90	2.90	2.60
Tin plate, per base box, Pitts.	$5.35	$5.35	$5.35	$4.85
Wire nails, Pittsburgh	2.75	2.75	2.75	2.25

Semifinished Material

Sheet bars, open-hearth, Youngs.	$37.00	$37.00	$37.00	$34.00
Sheet bars, open-hearth, Pitts.	37.00	37.00	37.00	34.00
Billets, open-hearth, Pittsburgh	37.00	37.00	37.00	34.00
Wire rods, No. 5 to $\frac{9}{32}$-inch, Pitts.	47.00	47.00	47.00	43.00

Pig Iron

	Feb. 19, 1938	Jan. 1938	Nov. 1937	Feb. 1937
Bessemer, del. Pittsburgh	$25.26	$25.26	$25.26	$22.30
Basic, Valley	23.50	23.50	23.50	20.50
Basic, eastern del. East. Pa.	25.26	25.34	25.34	22.51
No. 2 fdy., del. Pittsburgh	25.21	25.21	25.21	22.21
No. 2 fdry., Chicago	24.00	24.00	24.00	21.00
Southern No. 2, Birmingham	20.38	20.38	20.38	17.63
Southern No. 2, del. Cincinnati	23.89	23.89	23.89	20.94
No. 2X eastern, del. Phila.	26.135	26.21½	26.21½	23.38⅛
Malleable, Valley	24.00	24.00	24.00	21.00
Malleable, Chicago	24.00	24.00	24.00	21.00
Lake Sup., charcoal, del. Chicago	30.24	30.24	30.14	26.54
Gray forge, del. Pittsburgh	24.17	24.17	24.17	21.17
Ferromanganese, del. Pittsburgh	107.49	107.49	107.35	84.79

Scrap

Heavy melting steel, Pittsburgh	$14.25	$14.05	$14.10	$19.65
Heavy melt. steel, No. 2, E. Pa.	12.75	14.05	12.25	17.75
Heavy melting steel, Chicago	11.75	13.25	12.55	19.50
Rails for rolling, Chicago	15.25	14.90	15.10	20.75
Railroad steel specialties, Chicago	14.75	15.75	16.75	21.00

Coke

Connellsville, furnace, ovens	$4.25	$4.25	$4.37	$4.00
Connellsville, foundry, ovens	5.25	5.25	5.25	4.25
Chicago, by-product foundry, del.	11.00	11.00	11.00	11.00

STEEL, IRON, RAW MATERIAL, FUEL AND METALS PRICES

Except when otherwise designated, prices are base, f.o.b. cars.

Sheet Steel

Prices Subject to Quantity Extras and deductions (Except Galvanized)

Hot Rolled No. 10, 24-48 in.

Pittsburgh	2.40c
Gary	2.50c
Chicago, delivered	2.53c
Detroit, del.	2.60c
New York, del.	2.74c
Philadelphia, del.	2.70c
Birmingham	2.55c
St. Louis, del.	2.63c
Granite City, Ill.	2.60c
Pac. base pts. f.o.b. cars	2.97½c

Hot Rolled Annealed No. 24

Pittsburgh	3.15c
Gary	3.25c
Chicago, delivered	3.28c
Detroit, delivered	3.35c
New York, delivered	3.49c
Philadelphia, del.	3.45c
Birmingham	3.30c
St. Louis, del.	3.38c
Granite City, Ill.	3.35c
Pac. base pts. f.o.b. cars	3.82½c

Galvanized No. 24

Pittsburgh	3.80c
Gary	3.90c
Chicago, delivered	3.93c
Philadelphia, del.	4.10c
New York, delivered	4.14c
Birmingham	3.95c
St. Louis, del.	4.03c
Granite City, Ill.	4.00c
Pac. base pts. f.o.b. cars	4.42½c

Tin Mill Black No. 28

Pittsburgh	3.30c
Gary	3.40c
St. Louis, delivered	3.53c
Granite City, Ill.	3.50c

Cold Rolled No. 10

Pittsburgh	3.00c
Gary	3.10c
Detroit, delivered	3.21c
Philadelphia, del.	3.30c
New York, del.	3.34c
St. Louis, del.	3.23c
Granite City, Ill.	3.20c
Pac. base pts. f.o.b. cars	3.62½c

Cold Rolled No. 20

Pittsburgh	3.45c
Gary	3.55c
Detroit, delivered	3.66c
Philadelphia, del.	3.75c
New York, del.	3.79c
St. Louis	3.68c
Granite City, Ill.	3.65c

Enameling Sheets

Pittsburgh, No. 10	2.90c
Pittsburgh, No. 20	3.50c
Gary, No. 10	3.00c
Gary, No. 20	3.60c
St. Louis, No. 10	3.13c
St. Louis, No. 20	3.73c

Tin and Terne Plate

Gary base, 10 cents higher

Tin plate, coke (base box) Pittsburgh	$5.35
Waste-waste, 2.80c; strip	2.50c
Long ternes, No. 24, unassorted, Pitts.	4.10c

Corrosion and Heat-Resistant Alloys

Pittsburgh base, cents per lb.

Chrome-Nickel

	No. 302	No. 304
Bars	24.00	25.00
Plates	27.00	29.00
Sheets	34.00	36.00
Hot strip	21.50	23.50
Cold strip	28.00	30.00

Straight Chromes

	No. 410	No. 430	No. 442	No. 446
Bars	18.50	19.00	22.50	27.50
Plates	21.50	22.00	25.50	30.50
Sheets	26.50	29.00	32.50	36.50
Hot strip	17.00	17.50	23.00	28.00
Cold stp.	22.00	22.50	28.50	36.50

Steel Plate

Pittsburgh	2.25c
New York, del.	2.54c
Philadelphia, del.	2.44½c
Boston, delivered	2.66c
Buffalo, delivered	2.49½c
Chicago or Gary	2.30c
Cleveland, del.	2.45½c
Birmingham	2.40c
Coatesville, base	2.35c
Sparrows Pt., base	2.35c
Pacific basing points, f.o.b. cars	2.82½c
St. Louis, delivered	2.52c

Structural Shapes

Pittsburgh	2.25c
Philadelphia, del.	2.46½c
New York, del.	2.51¼c
Boston, delivered	2.64½c
Bethlehem	2.35c
Chicago	2.30c
Cleveland, del.	2.46c
Buffalo	2.35c
Gulf Ports	2.66c
Birmingham	2.40c
Pacific coast basing pts., f.o.b. cars	2.82½c
St. Louis, del.	2.52c

Bars

Soft Steel

(Base, 3 to 25 tons)

Pittsburgh	2.45c
Chicago or Gary	2.50c
Duluth	2.60c
Birmingham	2.60c
Cleveland	2.50c
Buffalo	2.55c
Detroit, delivered	2.60c
Pacific coast basing pts., f.o.b. cars	3.02½c
Philadelphia, del.	2.75c
Boston, delivered	2.86c
New York, del.	2.79c

Rail Steel

To Manufacturing Trade

Pittsburgh	2.30c
Chicago or Gary	2.35c
Cleveland	2.35c
Moline, Ill.	2.35c
Buffalo	2.40c
Birmingham	2.45c

Iron

Terre Haute, Ind.	2.35c
Chicago	2.40c
Philadelphia	2.64c
Pittsburgh, refined	3.50-8.00c

Reinforcing

New billet, straight lengths, quoted by distributors

Pittsburgh	2.45c
Chicago, Gary, Buffalo, Cleve., Birm., Young...	2.50c
Gulf ports	2.85c
Pacific coast ports, f.o.b. car docks	2.95c
Philadelphia, del.	2.75c

Rail steel, straight lengths, quoted by distributors

Pittsburgh	2.30c
Chicago, Buffalo, Cleveland, Birm., Young....	2.35c
Gulf ports	2.80c

Wire Products

Prices apply to mixed carloads, base; less carloads subject to quantity extras.

Base Pitts.-Cleve. 100 lb. keg.	
Standard wire nails	$2.75
Cement coated nails	$2.75
(Per pound)	
Polished staples	3.45c
Galv. fence staples	3.70c
Barbed wire, galv.	3.40c
Annealed fence wire	3.15c
Galv. fence wire	3.55c
Woven wire fencing (base C. L. column)	74
Single loop bale ties, (base C. L. column)	63

To Manufacturing Trade

Plain wire, 6-9 ga.	2.90c
Galvanized wire	2.95c

Anderson, Ind. (merchant products only) and Chicago up $1; Duluth and Worcester up $2; Birmingham up $3.

Spring wire, Pitts. or Cleveland	3.50c

Do., Chicago up $1, Worc. $2.

Cold-Finished Carbon Bars, Shafting

Pittsburgh	2.90c
Chicago	2.95c
Gary, Ind.	2.95c
Detroit	2.95c
Cleveland	2.95c
Buffalo	3.00c

Subject to quantity deductions and extras. List dated Aug. 26, 1935; revised Oct. 1, 1936.

Alloy Steel Bars (Hot)

(Base, 3 to 25 tons)

Pittsburgh, Buffalo, Chicago, Massillon, Canton, Bethlehem 3.00c

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.35	3100	0.70
2100	0.75	3200	1.35
2300	1.55	3300	3.80
2500	2.25	3400	3.20

4100 0.15 to 0.25 Mo. 0.55
4600 0.20 to 0.30 Mo. 1.50-2.00 Ni. 1.10
5100 0.80-1.10 Cr. 0.45
5100 Cr. spring 0.15
6100 bars 1.20
6100 spring 0.85
Cr. N., Van. 1.50
Carbon Van. 0.85
9200 spring flats 0.15
9200 spring rounds, squares 0.40

Piling

Pittsburgh	2.60c
Chicago, Buffalo	2.70c

Strip and Hoops

(Base, hot-rolled, 25-1 ton)
(Base, cold-rolled, 25-3 tons)

Hot strip to 23½-in.	
Pittsburgh	2.40c
Chicago or Gary	2.50c
Birmingham base	2.55c
Detroit, del.	2.61c
Philadelphia, del.	2.70c
New York, del.	2.74c
Cooperage hoop,	
Pittsburgh	2.50c
Chicago	2.60c
Cold strip, 0.25 carbon and under, Pittsburgh, Cleveland	3.20c
Detroit, del.	3.41c
Worcester, Mass.	3.40c

Carbon	Cleve. Pitts.	Worcester, Mass.
0.26—0.50	3.20c	4.30c
0.51—0.75	4.45c	4.65c
0.76—1.00	6.30c	6.50c
Over 1.00	8.50c	8.70c

Rails, Track Material

(Gross Tons)

Standard rails, mill	$42.50
Relay rails, Pittsburgh 20—100 lbs.	32.50-35.50
Light rails, billet qual., Pittsburgh, Chicago	$43.00
Do., rerolling quality	42.00
Angle bars, billet, Gary, Pittsburgh, So. Chicago	2.80c
Do., axle steel	2.35c
Spikes, R. R. base	3.15c
Track bolts, base	4.35c
Tie plate, base	$46.00

Base, light rails 25 to 60 lbs.; 20 lbs. up $2; 16 lbs. up $4; 12 lbs. up $8; 8 lbs. up $10. Base railroad spikes 200 kegs or more; base plates 20 tons.

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chicago. Discounts to legitimate trade as per Dec. 1, 1932, lists:

Carriage and Machine

½ x 6 and smaller	65-5 off
Do. larger, to 1-in.	60-10 off
Do. 1⅛ and 1¼-in.	60-5 off
Tire bolts	50 off

Plow Bolts

All sizes	65-5 off

Stove Bolts

In packages with nuts attached 70 off; in packages with nuts separate 70-10 off; in bulk 80 off on 15,000 of 3-inch and shorter, or 5000 over 3-inch.

Step bolts	50-10-5 off
Elevator bolts	50-10-5 off

Nuts

S. A. E. semifinished hex.: ½ to ⅞-inch	60-10 off
Do., 9/16 to 1-inch	60-5 off
Do., over 1-inch	60 off

Hexagon Cap Screws

Milled	50-10 off
Upset, 1-in., smaller	60 off

Square Head Set Screws

Upset, 1-in., smaller	75 off
Headless set screws	75 off

Rivets, Wrought Washers

Structural, Pittsburgh, Cleveland	3.60c
Structural, Chicago	3.70c
⅞-inch and smaller, Pitts., Chi., Cleve.	65-5 off
Wrought washers, Pitts., Chi., Phila. to jobbers and large nut, bolt mfrs. l.c.l. $5.40; c.l. $5.75	off

Cut Nails

Cut nails, C. L. Pitts. (10% disc. on all extras)	$3.60
Do., less carloads, 5 kegs or more, no discount on any extras	$3.90
Do., under 5 kegs no disc. on any extras	$4.05

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pitts, Lorain, O., to consumers in carloads. Gary, Ind., 2 points less. Chicago, del. 2½ less. Wrought pipe, Pittsburgh.

Butt Weld

Steel

In.	Blk.	Galv.
½	59½	49
¾	62½	53
1—3	64½	55½

Iron

¾	26	8
1—1¼	30	14
1½	34	16½
2	33½	16

Lap Weld

Steel

2	57	47½
2½—3	60	50½
3½—6	62	52½
7 and 8	61	50½
9 and 10	60½	50

Iron

2	26½	10
2½—3½	27½	12½
4	29½	16
4½—8	28½	15
9—12	24½	10

Line Pipe

Steel

1 to 3, butt weld	63½
2, lap weld	56
2½ to 3, lap weld	59
3½ to 6, lap weld	61
7 and 8, lap weld	60
10-inch, lap weld	59½
12-inch, lap weld	58½

Butt Weld

Iron

	Blk.	Galv.
¾	25	7
1 and 1¼	29	13
1½	33	15½
2	32½	15

Lap Weld

1½	23½	7
2	25½	9
2½ to 3½	26½	11½
4	28½	15
4½ to 8	27½	14
9 to 12	23½	9

Boiler Tubes

Carloads minimum wall seamless steel boiler tubes, cut lengths 4 to 24 feet, f.o.b. Pittsburgh, base price per 100 feet subject to usual extras.

Lap Weld

Sizes	Steel	Charcoal Iron
1½" OD x 13 Ga.	$10.45	$23.71
1¾" OD x 13 Ga.	11.89	22.93
2" OD x 13 Ga.	13.31	19.35
2" OD x 11 Ga.	15.49	23.36
2¼" OD x 13 Ga.	14.82	21.68
2¼" OD x 11 Ga.	17.38	26.02
2½" OD x 12 Ga.	17.82	26.57
2¾" OD x 12 Ga.	18.86	29.00
3" OD x 12 Ga.	19.73	31.36
3½" OD x 11 Ga.	24.89	39.81
4" OD x 10 Ga.	30.81	49.90
5" OD x 9 Ga.	47.57	73.93
6" OD x 7 Ga.	73.25	....

Seamless

	Hot Rolled	Cold Drawn
1" OD x 13 Ga.	$ 8.41	$ 9.46
1¼" OD x 13 Ga.	9.96	11.21
1½" OD x 13 Ga.	11.00	12.38
1¾" OD x 13 Ga.	12.51	14.09
2"OD x 13 Ga.	14.02	15.78
2¼" OD x 13 Ga.	15.63	17.60
2¼" OD x 12 Ga.	17.21	19.37
2½" OD x 12 Ga.	18.85	21.22
2¾" OD x 12 Ga.	19.98	22.49
3" OD x 12 Ga.	20.97	23.60
4½" OD x 10 Ga.	40.15	45.19
3½" OD x 11 Ga.	26.47	29.79
4" OD x 10 Ga.	32.83	36.94
5" OD x 9 Ga.	50.38	56.71
6" OD x 7 Ga.	77.35	87.07

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

6-in. & over, Birm.	$46.00-47.00
4-in., Birmingham	49.00-50.00
4-in., Chicago	57.20-58.20
6 to 24-in., Chicago	54.20-55.20
6-in. & over, east fdy.	50.00
Do., 4-in.	53.00

Class A Pipe $3 over Class B
Stnd. fitgs., Birm., base $100.00

Semifinished Steel

Billets and Blooms

4 x 4-inch base; gross ton

Pitts., Chi., Cleve., Buffalo, Young., Birm.	$37.00
Philadelphia	42.30
Duluth	39.00

Forging Billets

6 x 6 to 9 x 9-in., base

Pitts., Chicago, Buffalo	43.00
Forging, Duluth	45.00

Sheet Bars

Pitts., Cleve., Young Sparrows Point	37.00

Slabs

Pitts., Chicago, Cleveland, Youngstown	37.00

Wire Rods

Pitts., Cleve., No. 5 to ⅜-inch incl.	47.00
Do., over ⅜ to 41/64-inch incl.	52.00

Chicago up $1; Worcester up $2.

Skelp

Pitts., Chi., Young., Buff., Coatesville, Sparrows Pt.	2.10c

Coke

Price Per Net Ton

Beehive Ovens

Connellsville, fur.	$4.00- 4.50
Connellsville, fdry.	5.00- 5.50
Connell. prem. fdry	5.75- 6.25
New River fdry.	6.50- 6.75
Wise county fdry	5.75- 6.00
Wise county fur.	4.75- 5.00

By-Product Foundry

Newark, N. J., del.	10.88-11.35
Chi., ov., outside del.	10.25
Chicago, del.	11.00
Milwaukee, ovens	11.00
New England, del.	12.50
St. Louis, del.	11.00-11.50
Birmingham, ovens	7.50
Indianapolis, del.	10.50
Cincinnati, del.	10.50
Cleveland, del.	11.05
Buffalo, del.	10.50
Detroit, del.	11.10
Philadelphia, del.	10.63

Coke By-Products

Spot, gal. Producers' Plants

Pure and 90% benzol	16.00c
Toluol	30.00c
Solvent naphtha	30.00c
Industrial xylol	30.00c

Per lb. f.o.b. Frankford and St. Louis

Phenol (200 lb. drums)	16.25c
do. (450 lbs.)	15.25c

Eastern Plants, per lb.

Naphthalene flakes and balls, in bbls. to jobbers	7.25c
Per ton, bulk, f.o.b. oven or port	
Sulphate of ammonia	$29.50

Pig Iron

Delivered prices include switching charges only as noted. No. 2 foundry is 1.75-2.25 sil.; 25c diff. for each 0.25 sil. above 2.25 sil.; 50c diff. below 1.75 sil. Gross tons.

Basing Points:	No. 2 Fdry.	Malleable	Basic	Bessemer
Bethlehem, Pa.	$25.00	$25.50	$23.50	$26.00
Birdsboro, Pa.	25.00	25.50	24.50	26.00
Birmingham, Ala.‡	20.38	.....	19.38	25.00
Buffalo	24.00	24.50	23.00	25.00
Chicago	24.00	24.00	23.50	24.50
Cleveland	24.00	24.00	23.50	24.50
Detroit	24.00	24.00	23.50	24.50
Duluth	24.50	24.50	.....	25.00
Erie, Pa.	24.00	24.50	23.50	25.00
Everett, Mass.	25.75	26.25	25.25	26.75
Granite City, Ill.	24.00	24.00	23.50	24.50
Hamilton, O.	24.00	24.00	23.50	.....
Neville Island, Pa.	24.00	24.00	23.50	24.50
Provo, Utah	22.00	.....	.....	.....
Sharpsville, Pa.	24.00	24.00	23.50	24.50
Sparrow's Point, Md.	25.00	.....	24.50	.....
Swedeland, Pa.	25.00	25.50	24.50	26.00
Toledo, O.	24.00	24.00	23.50	24.50
Youngstown, O.	24.00	24.00	23.50	24.50

‡Subject to 38 cents deduction for 0.70 per cent phosphorus or higher.

Delivered from Basing Points:				
Akron, O., from Cleveland	25.39	25.39	24.89	25.89
Baltimore from Birmingham	25.78	.....	24.66	.....
Boston from Birmingham	26.57	.....	26.07	.....
Boston from Everett, Mass.	26.30	26.80	25.80	27.30
Boston from Buffalo	26.45	26.95	25.95	27.45
Brooklyn, N. Y., from Bethelehem	27.47	27.97	.....	.....
Brooklyn, N. Y., from Bmghm.	27.25	.....	.....	.....
Canton, O., from Cleveland	25.39	25.39	24.89	25.89
Chicago from Birmingham	24.42	.....	23.30	.....
Cincinnati from Hamilton, O.	24.27	25.11	24.61	.....
Cincinnati from Birmingham	23.89	.....	22.89	.....
Cleveland from Birmingham	24.32	.....	23.82	.....
Mansfield, O., from Toledo, O.	25.94	25.94	25.44	25.44
Milwaukee from Chicago	25.10	25.10	24.60	25.10
Muskegon, Mich., from Chicago, Toledo or Detroit	27.10	27.10	26.60	27.60
Newark, N. J., from Birmingham	26.21	.....	.....	.....
Newark, N. J., from Bethlehem	26.53	27.03	.....	.....
Philadelphia from Birmingham	25.58	.....	25.46	.....
Philadelphia from Swedeland, Pa.	25.84	26.34	25.34	.....
Pittsburgh district from Neville Island	Neville, base plus 63c, 76c, and $1.13 switch'g charges			
Saginaw, Mich., from Detroit	26.45	26.45	25.95	25.95
St. Louis, northern	24.55	24.55	24.05	.....
St. Louis from Birmingham	†24.12	.....	23.82	.....
St. Paul from Duluth	26.08	26.08	.....	26.58

†Over 0.70 phos.

Low Phos.

Basing Points: Birdsboro and Steelton, Pa., and Standish, N. Y., $28.50, Phil. base, standard and copper bearing, $29.63.

Gray Forge

Valley furnace $23.50
Pitts. dist. fur. 23.50

Charcoal

Lake Superior fur. $27.00
do., del. Chicago 30.24
Lyles, Tenn. 26.50

Silvery†

Jackson county, O., base: 6-6.50 per cent $28.50; 6.51-7—$29.00; 7-7.50—$29.50; 7.51-8—$30.00; 8-8.50—$30.50; 8.51-9—$31.00; 9-9.50—$31.50; Buffalo $1.25 higher.

Bessemer Ferrosilicon†

Jackson county, O., base: Prices are the same as for silveries, plus $1 a ton.

†The lower all-rail delivered price from Jackson, O., or Buffalo is quoted with freight allowed.

Manganese differentials in silvery iron and ferrosilicon, 2 to 3%, $1 per ton add. Each unit over 3%, add $1 per ton.

Refractories

Per 1000 f.o.b. Works, Net Prices

Fire Clay Brick

Super Quality

Pa., Mo., Ky. $64.60

First Quality

Pa., Ill., Md., Mo., Ky. ... 51.30
Alabama, Georgia 51.30
New Jersey 56.00

Second Quality

Pa., Ill., Ky., Md., Mo. ... 46.55
Georgia, Alabama 41.80
New Jersey 51.00

Ohio

First quality 43.70
Intermediate 39.90
Second quality 35.15

Malleable Bung Brick

All bases $59.85

Silica Brick

Pennsylvania $51.30
Joliet, E. Chicago 59.85
Birmingham, Ala. 51.30

Ladle Brick

(Pa., O., W. Va., Mo.)

Dry press $30.00
Wire cut $28.00

Magnesite

Imported dead - burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags) .. $45.00
Domestic dead - burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags) .. 43.00

Base Brick

Net ton, f.o.b. Baltimore, Plymouth Meeting, Chester, Pa.

Chrome brick $49.00
Chem. bonded chrome ... 49.00
Magnesite brick 69.00
Chem. bonded magnesite 59.00

Fluorspar, 85-5

Washed gravel, duty paid, tide, net ton $23.50-24.00
Washed gravel, f.o.b. Ill., Ky., net ton, carloads, all rail $20.00
Do., for barge $22.00
No. 2 lump 22.00-23.00

Ferroalloys

Dollars, except Ferrochrome

Ferromanganese, 78-82%, tidewater, duty pd. $102.50
Do., Baltimore, base .. 102.50
Do., del. Pittsburgh ... 107.49
Spiegeleisen, 19-21% dom. Palmerton, Pa., spot .. 33.00
Do., New Orleans 33.00
Do., 26-28%, Palmerton 39.00
Ferrosilicon, 50% freight allowed, c.l. 69.50
Do., ton lot 80.50
Do., 75 per cent 126.00
Spot, $5 a ton higher.
Silicoman., 2½ carbon .. 106.50
2% carbon 111.50; 1%, 121.50
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. del. 10.50
Ferrotungsten, stand., lb. con. del. cars 1.95-2.00
Ferrovanadium, 35 to 40% lb., cont. 2.70-2.90
Ferrotitanium, c. l., prod-plant, frt. all., net ton 142.50
Contract, ton lots 145.00
Spot, ton lots 150.00
Ferrophosphorus, per ton, c.l., 17-18% Rockdale, Tenn., basis, 18%, $3 unitage 58.50
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Monsanto, Tenn., 24% $3 unitage 75.00
Ferromolybdenum, stand. 55-65%, lb. f.o.b. mill 0.95
Molybdate, lb. cont. f.o.b. mill 0.80
Technical molybdenum trioxide, 53 to 60% molybdenum, f.o.b. mill .. 0.80
†Carloads. Quan. diff. apply.

Nonferrous

METAL PRICES OF THE WEEK

Spot unless otherwise specified. Cents per pound

	Copper: Electro, del. Conn.	Copper: Lake, del. Midwest	Copper: Casting, refinery	Straits Tin, New York Spot	Straits Tin, New York Futures	Lead New York N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 99%	Antimony American Spot, N. Y.	Nickel Cathodes
Feb. 12—Holiday.											
Feb. 14	10.00	10.12½	9.52½	40.50	40.87½	4.50	4.35	4.75	20.00	13.75	35.00
Feb. 15	10.00	10.12½	9.52½	41.12½	41.50	4.50	4.35	4.75	20.00	13.75	35.00
Feb. 16	10.00	10.12½	9.52½	41.50	41.87½	4.50	4.35	4.75	20.00	13.75	35.00
Feb. 17	10.00	10.12½	9.52½	41.75	42.12½	4.50	4.35	4.75	20.00	13.75	35.00
Feb. 18	10.00	10.12½	9.52½	42.25	42.62½	4.50	4.35	4.75	20.00	13.75	35.00

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 10.00c *Conn. copper*

Sheets

Yellow brass (high) 16.62½
Copper, hot rolled 18.12½
Lead, cut to jobbers 7.75
Zinc, 100-lb. base 10.00

Tubes

High, yellow brass 19.37½
Seamless copper 18.62½

Rods

High yellow brass 12.62½
Copper, hot rolled 14.62½

Anodes

Copper, untrimmed 15.37½

Wire

Yellow brass (high) 16.87½

OLD METALS

Nom. Del. buying prices

No. 1 Composition Red Brass

New York 6.10-6.25
Cleveland 6.75-7.00
Chicago 5.50-5.75
*St. Louis 5.12½-5.37½

Heavy Copper and Wire

New York, No. 1 .... 7.25-7.37½
Cleveland, No. 1 ..... 7.25-7.50
Chicago, No. 1 ..... 7.12½-7.37½
St. Louis 7.00-7.25

Composition Brass Borings

New York 5.10-5.25

Light Copper

New York 5.25-5.37½
Cleveland 5.50-5.75
Chicago 5.25-5.50
St. Louis 5.00-5.25

Light Brass

Cleveland 3.50-3.75
Chicago 3.50-3.75
St. Louis 3.25-3.75

Lead

New York 3.87½-4.00
Cleveland 3.25-3.50
*Chicago 3.00-3.25
St. Louis 3.25-3.50

Zinc

New York 2.12½-2.25
Cleveland 2.25-2.50
*St. Louis 2.12½-2.37½

Aluminum

Borings, Cleveland 5.75-6.00
Mixed cast, Cleve. 9.75-10.00
Clips, soft, Cleve. 13.25-13.50
Mixed cast, St. L. 9.75-10.00

SECONDARY METALS

Brass, ingot, 85-5-5-5, lcl. . 10.25
Stand. No. 12 alum. . 16.50-17.00

WAREHOUSE STEEL PRICES

Base Prices in Cents Per Pound, Delivered Locally, Subject to Prevailing Differentials

	Soft Bars	Bands	Hoops	Plates ¼-In. & Over	Structural Shapes	Floor Plates	Sheets Hot Rolled No. 10	Sheets Hot Roll Ann. No. 24	Sheets Galv. No. 24
Boston	4.20c	4.40c	5.40c	4.08c	4.07c	5.73c	4.15c	4.90c	5.10c
New York (Metropolitan)	4.12	4.32	4.32	4.00	3.97	5.60	4.07	4.50	5.00
Philadelphia	4.00	4.10	4.35	3.90	3.90	5.25	4.00	4.65	4.90
Baltimore	4.00	4.20	4.45	3.90	3.90	5.50	3.95	4.50	4.70
Norfolk, Va.	4.15	4.35	4.60	4.05	4.05	5.65	4.10	4.70	5.35
Buffalo	3.90	4.22	4.22	3.92	3.80	5.52	3.97	4.80	5.35
Pittsburgh	3.80	4.00	4.00	3.70	3.70	5.30	3.75	4.50	5.15
Cleveland	3.75	4.16	4.16	3.86	3.86	5.46	3.91	4.66	5.31
Detroit	3.935	4.185	4.185	3.95	3.95	5.55	3.935	4.685	5.40
Cincinnati	4.05	4.25	4.25	3.95	3.95	5.55	4.00	4.75	5.40
Chicago	3.85	4.10	4.10	3.75	3.75	5.35	3.85	4.60	5.25
Minneapolis	4.10	4.35	4.35	4.00	4.00	5.60	4.10	4.75	5.25
Milwaukee	3.96	4.21	4.21	3.86	3.86	5.46	3.96	4.71	5.36
St. Louis	4.09	4.34	4.34	3.99	3.99	5.59	4.09	4.84	5.49
Kansas City	4.34	4.59	4.59	4.24	4.24	5.84	4.10	4.85	5.50
Memphis	4.31	4.51	4.51	4.21	4.21	5.85	4.26	5.01	5.66
Chattanooga	4.21	4.41	4.41	4.11	4.11	5.91	4.16	4.06	4.66
Tulsa, Okla.	4.79	5.04	5.04	4.69	4.69	6.29	4.79	5.54	6.19
Birmingham, Ala.	3.85	4.05	4.05	3.75	3.75	5.96	3.80	4.55	5.20
New Orleans	4.10	4.65	4.65	4.00	4.00	5.95	4.25	4.75	5.15
Houston, Tex.	3.75	6.00	6.40	3.95	3.95	6.00	4.50	5.25	5.65
Seattle	4.45	4.95	6.30	4.25	4.25	6.00	4.50	5.35	5.90
Portland, Oreg.	4.00	4.50	6.50	4.00	4.25	5.70	4.20	5.15	5.90
Los Angeles	4.30	4.80	6.55	4.30	4.30	4.30	4.50	5.00	5.25
San Francisco	4.20	4.80	6.50	4.05	4.05	5.55	4.30	5.15	5.85

	Cold Rolled Strip	Cold Finished Bars	SAE Hot-rolled Bars (Unannealed) 1035-1050	2300 Series	3100 Series	4100 Series	6100 Series	SAE Cold Drawn Bars 2300	SAE Cold Drawn Bars 3100
Boston	3.845c	4.65c	4.50c	7.97c	6.52c	6.27c	8.37c	8.97c	7.52c
New York	3.92	4.57	4.32	7.82	6.37	6.12	....	9.00	7.55
Philadelphia	3.88	4.53	4.25	....	....	....	....	....	....
Baltimore	....	4.50	4.15	....	....	....	....	....	....
Norfolk, Va.	....	4.60	....	....	....	....	....	....	....
Buffalo	3.79	4.35	4.10	7.60	6.15	5.90	8.00	8.60	8.15
Pittsburgh	....	4.15	3.95	7.70	6.25	8.50	9.10	8.70	7.25
Cleveland	3.60	4.30	3.95	7.78	6.33	6.33	8.18	8.60	7.15
Detroit	3.78	4.30	4.085	7.89	6.44	6.19	7.74	8.88	7.43
Cincinnati	....	4.50	4.07	7.91	6.46	6.21	9.31	8.92	7.47
Chicago	3.87	4.30	4.05	7.60	6.15	5.90	8.00	8.60	7.15
Minneapolis	....	4.77	4.25	7.95	6.50	8.97	9.57	9.17	7.72
Milwaukee	....	4.41	4.16	7.81	6.36	6.11	8.21	8.81	7.36
St. Louis	3.96	4.54	4.29	7.94	6.49	6.24	8.34	8.94	7.49
Kansas City	4.37	4.79	....	....	....	....	....	....	....
Memphis	....	4.80	....	....	....	....	....	....	....
Chattanooga	....	4.86	....	....	....	....	....	....	....
Tulsa, Okla.	....	5.24	....	....	....	....	....	....	....
New Orleans	5.00	5.10	....	....	....	....	....	....	....
Seattle	....	5.85	6.05	....	8.00	8.00	8.65	....	....
Portland, Oreg.	....	5.85	5.85	9.00	8.00	7.85	8.70	....	....
Los Angeles	5.96	6.85	4.65	9.40	8.55	8.40	9.05	10.40	9.55
San Francisco	9.30	6.80	5.20	9.65	8.80	8.65	9.30	10.65	9.80

CURRENT IRON AND STEEL PRICES OF EUROPE

Dollars at Rates of Exchange, Feb. 17

Export Prices f. o. b. Port of Dispatch—

By Cable or Radio

	British gross tons U. K. ports £ s d	Continental Channel or North Sea ports, metric tons: Quoted in dollars at current value	**Quoted in gold pounds sterling £ s d
Foundry, 2.50-3.00 Si.	$30.18 6 0 0	$18 41	2 6 0
Basic bessemer	.....	17.82	2 4 6
Hematite, Phos. .03-.05	35.21 7 0 0*	.....	.....
Billets	$39.61 7 17 6	$43.01	5 7 6
Wire rods, No. 5 gage	56.71 11 5 6	42.00 to 44	5 5 0 to 5 10 0
Standard rails	$50.93 10 2 6	$46.00	5 15 0
Merchant bars	2.64c 11 15 0	1.81c	5 0 0
Structural shapes	2.39c 10 12 6	1.76c	4 17 6
Plates, †¼ in. or 5 mm.	2.60c 11 11 3	2.22c	6 2 6
Sheets, black, 24 gage or 0.5 mm.	3.15c 14 0 0	2.81c	7 15 0*
Sheets, gal., 24 ga., corr.	3.77c 16 15 0	3.44c	9 10 0
Bands and strips	2.98c 13 5 0	1.91c to 1.99c	5 5 0 to 5 10 0
Plain wire, base	4.39c 19 10 0	2.22c to 2.63c	6 2 6 to 7 5 0
Galvanized wire, base	5.23c 23 5 0	2.84c to 2.94c	7 17 6 to 8 2 6
Wire nails, base	4.16c 18 10 0	2.53c to 2.71c	7 0 0 to 7 10 0
Tin plate, box 108 lbs.	$5.66 1 2 6	....	.....

British ferromanganese $102.50 delivered Atlantic seaboard, duty-paid

Domestic Prices at Works or Furnace—

Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5.	$27.41	5 9 0(a)	$18.53	563½	$24.72	725	$25.55	63
Basic bess. pig iron	25.15	5 0 0(a)	.....	...	.....	...	28.19(b)	69.50
Furnace coke	8.80	1 15 0	6.22	189	7.33	215	7.71	19
Billets	39.71	7 17 6	27.63	840	32.74	960	39.14	96.50
Standard rails	2.28c	10 2 6	1.73c	1,150	2.06c	1,375	2.38c	132
Merchant bars	2.58c	11 9 0	1.62c	1,080	1.65c	1,100	1.98c	110
Structural shapes	2.48c	11 0 6	1.58c	1,055	1.65c	1,100	1.93c	107
Plates, †¼-in. or 5 mm.	2.64c	11 14 3	2.03c	1,350	2.06c	1,375	2.29c	127
Sheets, black	3.53c	15 15 0§	2.35c	1,565‡	2.36c	1,575‡	2.59c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	4.16c	18 10 0	3.38c	2,250	4.50c	3,000	6.66c	370
Plain wire	4.39c	19 10 0	2.49c	1,660	2.48c	1,650	3.11c	173
Bands and strips	2.75c	12 4 0	1.82c	1,210	2.32c	1,550	2.29c	127

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continent usually for basic-bessemer steel. (a) del. Middlesbrough. (b) hematite. °Close annealed.

**Gold pound sterling carries a premium of 64.4 per cent over paper sterling.

—The Market Week—

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated; † indicates brokers prices

HEAVY MELTING STEEL

Birmingham, No. 1.	10.00
Birmingham, No. 2.	9.00
Bos. dock No. 1 exp.	14.00
N. Eng. del. No. 1..	13.50
Buffalo, No. 1	12.50-13.00
Buffalo, No. 2	10.50-11.00
Chicago, No. 1	11.50-12.00
Cleveland, No. 1 ..	12.50-13.00
Cleveland, No. 2 ...	11.50-12.00
Detroit, No. 1	9.50-10.00
Eastern Pa., No. 1..	14.50
Eastern Pa., No. 2..	12.50-13.00
Federal, Ill.	11.00-11.50
Granite City, R. R..	12.00-12.50
Granite City, No. 2..	11.00-11.50
Los Angeles, No. 1.	15.00-17.50
Los Angeles, No. 2.	13.50-16.00
New York, No. 1....	†11.00
N. Y. dock No. 1 exp.	13.50
Pitts., No. 1 (R. R.)	15.50-16.00
Pitts., No. 1 (dlr.)..	14.00-14.50
Pittsburgh, No. 2...	13.00-13.50
St. Louis, R. R....	12.00-12.50
St. Louis, No. 2 ...	11.00-11.50
San Francisco, No. 1	14.00-15.00
Seattle, No. 1	8.00
Toronto, dlrs. No. 1	10.00
Valleys, No. 1	13.50-14.00

COMPRESSED SHEETS

Buffalo, dealers ..	10.50-12.00
Chicago, factory ...	10.50-11.00
Chicago, dealer	9.50-10.00
Cleveland	12.00-12.50
Detroit	10.25-10.75
E. Pa., new mat....	14.50
E. Pa., old mat.	9.50-10.00
Los Angeles	13.00-16.00
Pittsburgh	14.00-14.50
St. Louis	7.25- 7.75
Valleys	12.50-13.00

BUNDLED SHEETS

Buffalo	11.50
Cincinnati, del.	9.00- 9.50
Cleveland	9.00- 9.50
Los Angeles.....	11.50-14.50
Pittsburgh	13.00-13.50
St. Louis	6.50- 7.00
Toronto, dealers ...	7.00

SHEET CLIPPINGS, LOOSE

Chicago	7.00- 7.50
Cincinnati	5.50- 6.00
Detroit	7.00- 7.50
† Los Angeles	4.00
St. Louis	5.50- 6.00

STEEL RAILS, SHORT

Birmingham	15.00
Buffalo	17.50-18.00
Chicago (3 ft.)	15.50-16.00
Chicago (2 ft.)	16.00-16.50
Cincinnati, del.	17.00-17.50
Detroit	14.50-15.00
Los Angeles	18.00-22.00
Pitts, 3 ft. and less	17.75-18.25
St. Louis, 2 ft. & less	15.00-15.50

STEEL RAILS, SCRAP

Boston district	†11.00
Buffalo	15.50-16.00
Chicago	11.50-12.00
Cleveland	16.50-17.00
Pittsburgh	15.75-16.25
St. Louis	12.50-13.00
Seattle	10.00

STOVE PLATE

Birmingham	8.00- 8.50
Boston, district	†8.25- 8.50
Buffalo	10.50-11.00
Chicago, net	8.50- 9.00
Cincinnati, dealers..	5.50- 6.00
Detroit, net	8.50- 9.00
Eastern Pa.	12.50-13.00
New York, fdry.....	†9.00- 9.50
St. Louis	8.50- 9.00
Toronto, deal'rs, net	9.00

SPRINGS

Buffalo 16.00-16.50	
Chicago, coil	16.50-17.00
Chicago, leaf	15.00-15.50
Eastern Pa.	17.50-18.00
Pittsburgh	17.75-18.00
St. Louis	15.00-15.50

ANGLE BARS—STEEL

Chicago	14.00-14.50
St. Louis	12.50-13.00

RAILROAD SPECIALTIES

Chicago	14.50-15.00

LOW PHOSPHORUS

Buffalo, crops	17.00-17.50
Cleveland, crops ...	19.50-20.50
Eastern Pa., crops..	19.00-19.50
Pittsburgh, crops...	17.50-18.00

FROGS, SWITCHES

Chicago	12.00-12.50
St. Louis, cut	12.00-12.50

SHOVELING STEEL

Federal, Ill.	11.00-11.50
Granite City, Ill. ...	11.00-11.50
Los Angeles (net)..	16.00-18.00
Toronto, dealers....	8.00

RAILROAD WROUGHT

Birmingham	11.00-11.50
Boston district	†9.00- 9.50
Chicago, No. 1 net..	9.50-10.00
Cincinnati, No. 2...	9.50-10.00
Eastern Pa., No. 1..	15.50-16.00
St. Louis, No. 1	8.50- 9.00
St. Louis, No. 2	12.00-12.50
Toronto, No. 1 dlr...	16.00

SPECIFICATION PIPE

Eastern Pa.	14.00-14.50
New York	†9.00- 9.50

BUSHELING

Buffalo, No. 1	10.50-11.00
Chicago, No. 1	10.50-11.00
Cincin., No. 1, deal..	8.50- 9.00
Cincinnati, No. 2...	3.00- 3.50
Cleveland, No. 2 ..	8.50- 9.00
Detroit, No. 1, new.	9.50-10.00
Valleys, new, No. 1	12.50-13.00
Toronto, dealers....	7.00

MACHINE TURNINGS

Birmingham	6.00- 7.00
Buffalo	6.25- 6.75
Chicago	6.00- 6.50
Cincinnati, dealers..	4.00- 4.50
Cleveland	7.50- 8.00
Detroit	5.25- 5.75
Eastern Pa.	7.50
Los Angeles	4.00- 8.00
New York	†5.00- 5.50
Pittsburgh	8.00- 8.50
St. Louis	5.00- 5.50
Toronto, dealers....	7.00
Valleys	9.50-10.00

BORINGS AND TURNINGS

For Blast Furnace Use

Boston district	†2.50
Buffalo	6.50- 7.00
Cincinnati, dealers..	3.50- 4.00
Cleveland	9.00- 9.50
Detroit	6.25- 6.75
Eastern Pa.	7.00
New York	†4.50- 5.00
Pittsburgh	7.00- 7.50
Toronto, dealers....	7.50

CAST IRON BORINGS

Birmingham	6.00- 7.00
Boston dist. chem...	†7.50- 8.00
Bos. dist. for mills	†7.00- 7.50
Buffalo	6.50- 7.00
Chicago	6.00- 6.50
Cincinnati, dealers..	3.50- 4.00
Cleveland	9.00- 9.50
Detroit	6.25- 6.75
E. Pa., chemical....	13.50-14.00
New York	†4.50- 5.00
St. Louis	5.00- 5.50
Toronto, dealers....	7.50

PIPE AND FLUES

Cincinnati, dealers..	7.00- 7.50
Chicago, net	7.50- 8.00

RAILROAD GRATE BARS

Buffalo	9.00- 9.50
Chicago, net	8.50- 9.00
Cincinnati	5.50- 6.00
Eastern Pa.	12.50-13.00
New York	†9.00- 9.50
St. Louis	9.00- 9.50

FORGE FLASHINGS

Boston district	†7.00
Buffalo	10.50-11.00
Cleveland	11.00- 11.50
Detroit	9.00- 9.50
Los Angeles	9.00
Pittsburgh	12.75-13.25

FORGE SCRAP

Boston district	†6.50
Chicago, heavy	15.00-15.50

ARCH BARS, TRANSOMS

St. Louis 14.00-14.50	

AXLE TURNINGS

Boston district	†7.50
Buffalo	12.00-12.50
Chicago, elec. fur...	11.50-12.00
Eastern Pa.	14.00-14.50
St. Louis	9.50-10.00
Toronto	8.00

STEEL CAR AXLES

Birmingham	16.00-17.00
Buffalo	16.00-16.50
Boston district	†14.00
Chicago, net	18.00-18.50
Eastern Pa.	21.50-22.00
St. Louis	17.50-18.00

SHAFTING

Boston district	14.50-15.00
New York .....†15.50-16.00	
Eastern Pa.	19.00-19.50
St. Louis	13.00-13.50

CAR WHEELS

Birmingham	14.00-15.00
Boston dist., iron...	†10.00
Buffalo, steel	16.00-16.50
Chicago, iron	14.50-15.00
Chicago, rolled steel	14.50-15.00
Cincinnati, iron	15.00-15.50
Eastern Pa., iron...	15.50
Eastern Pa., steel ..	17.50-18.00
Pittsburgh, iron	15.00-15.50
Pittsburgh, steel..	17.75-18.25
St. Louis, iron	13.50-14.00
St. Louis, steel	14.75-15.25

NO. 1 CAST SCRAP

Birmingham	14.00-14.50
Boston, No. 1 mach.	†11.00
N. Eng. del. No. 2..	12.00
N. Eng. del. textile.	15.50-16.00
Buffalo, cupola ...	13.50-14.00
Buffalo, mach.	15.00-15.50
Chicago, agri. net..	10.50-11.00
Chicago, auto	11.50-12.00
Chicago, railr'd net	10.50-11.00
Chicago, mach. net.	11.50-12.00
Cincin., mach. cup...	11.00-11.50
Cleveland, mach....	17.00-17.50
Eastern Pa., cupola.	16.00-16.50
E. Pa., mixed yard..	14.00
Los Angeles	13.00-14.00
Pittsburgh cupola..	16.00-16.50
San Francisco, del..	13.50-14.00
Seattle	8.00
St. Louis, No. 1	10.00-10.50
St. L., No. 1, mach.	11.00-11.50
Toronto, No. 1, mach., net	12.50

HEAVY CAST

Boston dist. break..	†9.00- 9.50
N. Eng., del.	11.50-12.00
Buffalo, break	11.00-11.50
Cleveland, break....	14.50-15.50
Detroit, break.	10.00-10.50
Detroit, auto net...	12.50-13.00
Eastern Pa.	14.00-14.50
Los Angeles	13.00-14.00
New York, break. ..	†10.50-11.00
Pittsburgh	12.50-13.00

MALLEABLE

Birmingham, R. R.	12.50-13.50
New England, del...	16.00
Buffalo	13.50-14.00
Chicago, R. R.....	14.00-14.50
Cincin., agri. del...	10.50-11.00
Cleveland, rail	15.50-16.00
Detroit, auto	11.50-12.00
Eastern Pa., R. R. ..	16.50-17.50
Los Angeles	13.00-14.00
Pittsburgh, rail	14.25-14.75
St. Louis, R. R.	13.00-13.50

RAILS FOR ROLLING

5 feet and over

Birmingham	16.00-17.00
Boston	†12.00
Chicago	15.00-15.50
Eastern Pa.	18.00-18.50
New York .....†15.00-15.50	
St. Louis	14.00-14.50

LOCOMOTIVE TIRES

Chicago (cut)	15.00-15.50
St. Louis, No. 1	14.75-15.25

LOW PHOS. PUNCHINGS

Buffalo	16.00-16.50
Chicago	14.00-14.50
Eastern Pa.	18.00-19.00
Pittsburgh (heavy).	17.50-18.00
Pittsburgh (light) ..	17.00-17.50
Seattle	13.00

Iron Ore

Lake Superior Ore

Gross ton, 51½ % Lower Lake Ports

Old range bessemer	$5.25
Mesabi nonbess.	4.95
High phosphorus	4.85
Mesabi bessemer	5.10
Old range nonbess.	5.10

Eastern Local Ore

Cents, unit, del. E. Pa.

Foundry and basic 56.63% con.	9.00-10.00
Cop.-free low phos. 58-60% .....nominal	

Foreign Ore

Cents per unit, f.a.s. Atlantic

Foreign manganiferous ore, 45.55% iron, 6-10% man. nom.	12.00-13.00
No. Afr. low phos.	nominal
Swedish low phos...	17.00-18.00
Spanish No. Africa basic, 50 to 60% nom..	12.00
Tungsten, sh. ton. unit, duty paid nom.	24.50-25.50
N. F., fdy., 55%....	7.00
Chrome ore, 48% gross ton, c.i.f...	$25.50-26.50
Molybdenum ores sulphide, per lb. molybdenum contained, f.o.b. mill	0.75

Manganese Ore

Prices not including duty, cents per unit cargo lots.

Caucasian, 50-52%.. ..... non.	45.00
So. African, 50-52% nom.	45.00
Indian, 50-52%.....Nominal	

Second Quarter Price Unchanged

Carnegie-Illinois Steel Corp. has issued the following statement, reaffirming all prices on hot-rolled products for second quarter delivery and applying the recently reduced prices on cold-rolled sheets which became effective ten days ago. Other producers are making similar announcements.

The Carnegie-Illinois Steel Corp. announces that its base prices on all hot-rolled products for second-quarter shipments will be the same as those for the first quarter.

"The base prices for cold-rolled sheets for second-quarter shipments, however, will be the reduced prices which became effective last week."

To maintain relationship between hot-rolled pickled sheets and cold-rolled sheets Carnegie-Illinois has announced reduction in pickling extras as follows: 17-18 gage, reduced from 25 to 20 cents; 19-20 gage from 30 to 20 cents; 21-22 gage from 35 to 25 cents.

Sheets

Sheet Prices, Page 80

Pittsburgh—No immediate business has resulted from the reduction in price on cold-rolled sheets. Markets in this district are quieter, if anything. Production of common sheets has dropped three points to 26 per cent of capacity, with the jobbing mill report also off three points to 22 per cent. Galvanized sheet production is holding to the same levels, being reported this week at 35 per cent of capacity.

Cleveland—Tonnage of hot and cold-rolled sheets booked by sellers the past week has dropped off rather abruptly. Many attributed this to the uncertainties in future prices, arising from the reduction of $4 a ton in cold-rolled sheets ten days ago. But now that this uncertain factor has been settled, by announcement that prices of all steel products are to be extended unchanged into second quarter; there is reason to believe that this tonnage temporarily held back will be released.

Chicago—Reduction of $4 a ton on cold-rolled sheets has been without effect upon business. Automotive orders are light, though the outlook for increased assemblies during the next 60 days has improved. Mills report a lack of pressure on the part of consumers for similar price reductions on other grades. Production is fairly steady but early delivery is available on most grades. Shipments range up to three weeks on hot-rolled annealed and galvanized material.

Boston—With few exceptions industrial consumers of sheets are buying sparingly. Jobbers have followed the mill reduction in cold finished prices, although this action has failed to stimulate buying to any extent. Orders from miscellaneous sources make up most current buying, a good part of which is being handled through warehouses. B. F. Sturtevant Co., Hyde Park, Boston, is low on fans, motors and transmissions required for the ventilation of the north tube, Lincoln tunnel, Manhattan-Weehawken, N. J., at approximately $371,192; bids Feb. 15. The same company has the ventilation equipment for the Queens-Manhattan midtown tunnel. A large tonnage of sheets and miscellaneous steel will be required for this work,

THIS WICK COULDN'T BURN
-without Tallow
To children, a lighted candle is only a flaming wick. They know nothing of the substance which makes the wick burn, nor do they care to learn. And coal consumers sometimes see only the flaming wick, failing to look beyond the companies from which they purchase fuel.
But alert buyers and engineers look behind the companies which sell coal to the iron and steel industries. They consider the SOURCE of supply. They know the best source of supply is one which backs its outlets with fuel engineering assistance. They know that reliable sources of supply help iron and steel industries use solid fuel in the MOST ECONOMICAL WAY.
Your dependable sources of supply are the 124 companies affiliated with Appalachian Coals, Inc. The ACI producing units operate in the eight high volatile districts of Kentucky, Tennessee, Virginia and West Virginia. ACI companies are equipped to furnish over FORTY MILLION TONS of "all-purpose coals" annually, coals of exceptionally low sulphur content.
Write for your copy of "The ACI Family," a pocket-size booklet listing ACI Agents, ACI Producers, seams, etc.
APPALACHIAN
STABILITY
KY
TENN
WVA
VA
ACI
QUALITY · SERVICE
COALS, INC.
Appalachian Coals, Inc.
TRANSPORTATION BUILDING · CINCINNATI, OHIO

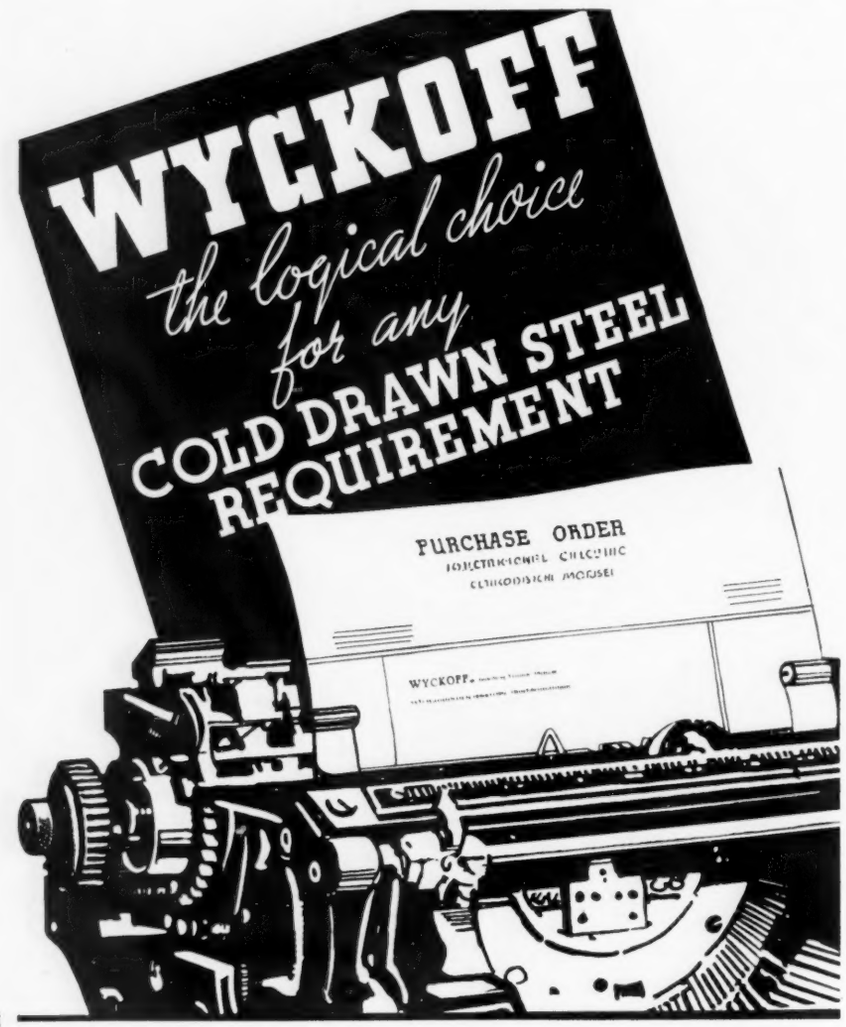
although production will not start for several months.

Birmingham, Ala. — The sheet market remains unchanged with a slight increase in spot market for manufacturers' sheets and a slump in market for roofing.

Philadelphia—Several small releases have been issued by automotive interests but activity in other directions is negligible. Most consumers are buying only as immediate needs dictate. No great pressure has been exerted on prices and announcement of unchanged schedules for second quarter has cleared the situation.

Cincinnati—Recent sheet orders show marked improvement in comparison with bookings in early January. Tonnage during one week this month was the best in any week since last Labor Day.

St. Louis—The reduction of $4 per ton in the net price of cold-rolled sheets had practically no effect on the situation here. Such material is not produced locally and demand is limited. Generally demand for sheets continues to show betterment, due mainly to depleted consumer stocks. Buying is on a necessity basis, producers and distributors reporting no interest in future requirements.



When you want the right steel at the right time for the right place, write WYCKOFF into your cold drawn steel specifications and you write your own guarantee of complete satisfaction.

WYCKOFF DRAWN STEEL COMPANY
General Offices: FIRST NATIONAL BANK BUILDING, PITTSBURGH, PA.
Mills at AMBRIDGE, PA. and CHICAGO, ILL.
Manufacturers of . . . Carbon and Alloy Steels . . . Turned and Polished Shafting . . . Turned and Ground Shafting . . . Wide Flats up to 12" x 2". Warehouse stocks carried by nationally known distributors

Strip

Strip Prices, Page 81

Pittsburgh — Consumption is still at low ebb, with no immediate increase on the part of automotive buyers expected. Miscellaneous buying is going on, with both hot and cold-rolled production up 1 point to 20 per cent of capacity for hot-rolled and 21 per cent for cold-rolled.

Cleveland—New business in wide and narrow hot and cold-rolled strip has eased somewhat and represents only urgent needs of consumers. Operations of most producers continue spotty at the low levels reported during January. No real improvement is expected until finished parts begin to move at a more rapid pace. However, the announcement that present prices will be extended into second quarter is expected to bring in considerable tonnage held up the last 10 days waiting for such an announcement.

Commodity cold-rolled strip, an automotive material, has been reduced $2 per ton.

Chicago — Strip demand is unchanged. Automotive needs continue light, but prospects are slightly better as a result of anticipated improvement in motor car assemblies during coming weeks. Consumers' stocks are light, but orders are dictated entirely by early needs.

Boston — There has been a slight, but somewhat encouraging improvement in narrow cold strip buying. Increasingly evident is the fact consumers are short on some specifications, and are forced to take some tonnage despite low operations. The bulk of such orders, mostly for prompt delivery, and small individually, are from the smaller consumers. In spots there has been some upturn in finishing operations.

Philadelphia—Buying is reported at about the same volume as for the past two or three weeks. Immediate delivery is asked on practically all business, indicating material is going into production at once.

Cold Finished

Cold Finished Prices, Page 81

Pittsburgh—Production of cold-finished steel is practically unchanged, with orders off somewhat, probably due to price uncertainties

preceding last week's announcement. Small widely diversified orders are still the mainstay of demand for this grade of steel.

Plates

Plate Prices, Page 80

Pittsburgh — Since plate prices have been reaffirmed on the same basis for second quarter, sources here expect a gradual upswing in business. The market is fairly steady, with operations practically unchanged for the week.

Cleveland — Specifications for wide and narrow plates remain spotty, representing only actual needs. Demand from railroads is particularly disappointing. The roads are apparently waiting for the Interstate Commerce Commission to pass down a decision on their request for a general freight rate increase of 15 per cent. However, according to some authorities, even if the freight advance is granted buying will not immediately appear because railroads have more than enough equipment to handle any probable increase in traffic in the near future.

Chicago — Plate orders are small individually and in total. Prospects for better demand from railroads in the immediate future are unfavorable. The Milwaukee road plans building of 519 additional freight and passenger cars, and the Union Pacific is resuming work on the building of 1700 cars. Structural fabricators are fairly steady in their plate requirements, though tonnages involved continue light.

Boston—With shipbuilding requirements increasing, the outlook for plates is enhanced by a better future for car building and repair needs. Current demand is light, with orders for scattered car lots. Boiler shops are not releasing much material. Some specifications are also subject to slight delay in delivery because of the lack of sufficient orders of the same type to warrant immediate rolling.

Philadelphia — Pusey & Jones Corp., Wilmington, Del., has been awarded a contract for a seagoing hopper dredge at $1,764,550 on which bids were opened Dec. 14. It will require 1800 tons of plates and 900 tons of structurals. Plate tonnage continues to come out slowly. Considerable ship work is ahead for the next few months but a large part of the plate tonnage already is earmarked for certain producers. Little optimism is expressed over prospects for railroad buying even if a rate increase is granted. It is pointed out that several important car-building programs have been shelved, even though the steel has been delivered. No new work is likely until these programs have been worked out. Miscellaneous buying, while not large, is sufficient to maintain plate rolling schedules on the basis of two to three days a week.

New York—Eastern plate makers indicate they will follow the leading producer, who late last week reaffirmed prices for second quarter. Clarification of prices is expected to result in a somewhat more active market for plates. Relatively few large tonnages are pending, but it is believed there will be a better accumulation of small orders than has been experienced over recent weeks. Approximately 2500 tons of plates will be required for the municipal water line to be installed in avenue P, Brooklyn, including a sizable amount of 60-inch welded steel pipe.

Birmingham, Ala. — Plate tonnage continues spotty with buying in comparatively small lots. Mills

The molten metal bath which you give your product, while usually the *last* stage of processing, is essentially *first* in protective importance and therefore should be selected from both a *practical* and *economical* worth. This *NEW* DRY BLANKET COVERING for molten metal baths of zinc, lead, tin and their alloys, has been scientifically prepared to effect these advantages:

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FORTY YEARS OF SUCCESSFUL SERVICE

Behind the Scenes with STEEL

My Dear, It's a Shame

■ The Reader's Service Department just got a letter from Verein deutscher Eisenhuttenleute with a couple of Inhaltsverzeichnisses and a Halbjahresband or two thrown in. It was all very simple—they were thanking us for two copies of STEEL (or they were asking for them—or maybe sending them back). Anyway, it was something about two copies of STEEL. Brashly we offered to aid in the translation of the letter. We naturally thought there'd be at least one Bei Mir Bist Du Schoen in it.

Pomes Are Made

■ The Tonsorial Board of Editors, affiliated with the National Society for the Splitting of Hairs, recently went into solemn Klonklave and came up with an enlightening decision. Hereafter all houses, huts, abodes, residences, menages, bungalows, casas, castles or cottages fabricated from steel, 120 per cent or any fraction thereof, will be known as steel houses—and not as steel homes. As one of the Tonsorialists put it: "You can make a steel house, but you can't make a steel home—at least a steel company can't."

Slight Mix-Up

■ Gracing the walls and corridors of these dignified offices are autographed photos of many of the industry's great steelmasters, executives and key men. But today on our desk, a new photo appears. It shows a horse—not an ordinary horse, but a Wonder Horse named Tony. Beside him is a cowboy named Tom Mix. For Shrdlu it is autographed: "To my straight shooter pal, with best wishes, Tom Mix." It arrived in a neat little box, along with printed matter describing other wonders that can be ours merely by slicing the top of a box of breakfast food and mailing it somewhere. It also says we will be proud to show the picture to our friends because it proves we're a personal friend of Tom's. Not that we aren't grateful, but would anyone swap us for a genuine autographed photo of Benny Goodman, Louis Armstrong or Martha Raye?

Convivial Note

■ It was somewhat aback-takening to notice the other day the manner in which our Marvelous Trumpet of the Metal Trades is listed in the Cleveland phone book. Now we wouldn't mind so much being called a mag, a rag, a lflt, a ctlg, a brdsd, a fldr or even a pmphlt, but what will People think when they go to call us up and see the listing: "Steel a pub"?

Hey, Joe, three beers for three engineers!

To End All Surveys

■ At last it can be told! Some time ago we threatened to conduct a survey to show just where Behind The Scenes stood in popularity, as against other departments of the magazine.

The following table will tell you precisely how many people read this column and throw the rest of the magazine away (also vice versa). As you will note, our readership has been broken down in more ways than one (news section readers, tech readers, ad readers, and BTS readers, of course).

Readership of STEEL	*
Readers of News only	**
Readers of Tech only	***
Readers of Ads only	****
Readers of Behind the Scenes only	*****

* Exact figures deleted by Circulation dept.

** Exact figures deleted by Tech staff and Adv. dept.

*** Exact figures deleted by News staff and Adv. dept.

**** Exact figures deleted by News staff and Tech staff.

***** Exact figures deleted by Circulation dept., News staff, Tech staff and Adv. dept.

The figures lie for themselves. Need we say more?

—SHRDLU

believe a slight upturn, however, is in prospect.

Seattle — Seattle opened bids Feb. 17 for the Volunteer Park-Magnolia pipeline extension involving 1600 tons of ½ to 9/16-inch plates. Seattle light department has called bids March 3 for a bypass tunnel pipeline at Ruby dam receiving 100 tons 5/16-inch welded steel pipe and 25 tons of shapes for trash racks. Pasco, Wash., has awarded a 400,000-gallon steel water tank to Steel Tank & Pipe Co., Portland, Oreg., 100 tons or more.

Plate Contracts Placed

710 tons, dredge and shore pipe, Plaquamine, Ia., to American Rolling Mill Co., Middletown, O.

145 tons, 3000 feet welded steel pipe, U. S. engineer, Paducah, Ky., to American Rolling Mill Co., Middletown, O.

100 tons or more, water storage tank for Pasco, Wash.; Steel Tank & Pipe Co., Portland, Oreg., general contractor.

Plate Contracts Pending

1600 tons, ½ to 9/16 inch, for Seattle pipe line extension; bids opened Feb. 17.

386 tons, Panama, schedule 3329; bids Feb. 11, Central Iron & Steel Co., Harrisburg, Pa.

125 tons, including 25 tons shapes, Seattle light department Ruby dam project; bids March 3.

Unstated tonnage, 115,000-gallon tank, Pascagoula, Miss., to R. D. Cole Mfg. Co., Newman, Ga.

Unstated tonnage, wrought iron hull for 15-ton derrick boat, U. S. engineer, Mobile, Ala.; Ingalls Iron Works Co., Birmingham, Ala., low at $21,581, adjusted delivered price; on alternative for Cor-ten steel hull Alabama Dry Dock & Shipbuilding Co., Mobile, low on adjusted delivered price, $24,431; bids Feb. 10.

Bars

Bar Prices, Page 80

Pittsburgh — Slight reductions in bar orders have been noticed in this district, with most buying at this time merely for filling gaps. No automotive inquiries of any consequence have entered the market.

Cleveland—Sellers of carbon and alloy steel bars report a slight dropping off of new business. Operations of road and farm equipment manufacturers continue comparatively steady although in the latter case further curtailment is in process. Auto partsmakers have failed to show the expected improvement as auto builders continue to hold up releases. Producers are operating on substantially reduced schedules. Extension of prices into the second quarter should have a stabilizing effect on present market conditions.

Chicago — Bar sales show little change, business holding around the average for the year to date. While

the automotive outlook has improved slightly, this has not been reflected in bar demand. Farm equipment manufacturers remain the best consumers in this district, with a fairly heavy movement to warehouses continuing.

Boston—Alloy and tool steel demand by machinery builders has slackened slightly as some shops are less active. Carbon steel bars are moving in small lots. Bids are in on several hundred tons for navy ships, most for Boston delivery. Railroads are releasing little tonnage. Makers of large chain are spasmodic buyers. Forging material is moving in limited shipments for current needs.

New York — With clarification of price for second quarter sentiment in the bar market is somewhat improved, although orders have not as yet begun to respond. Sellers generally, however, anticipate better business in the closing days of this month, which may expand through March. Nevertheless, they are conservative in their outlook for the time being, particularly in view of the likelihood of continued absence of railroad demand over the next few weeks.

Philadelphia — Scattered buying continues to predominate in the bar market with no consuming interest particularly outstanding. Requisitions continue to accumulate in railroad purchasing offices but few releases are expected until the freight rate decision is announced. This is expected before March 1. Prices are steady.

Pipe

Pipe Prices, Page 81

Pittsburgh — Oil country tubular goods remain fairly active, while the balance of production is largely due to small sizes produced for warehouse buyers.

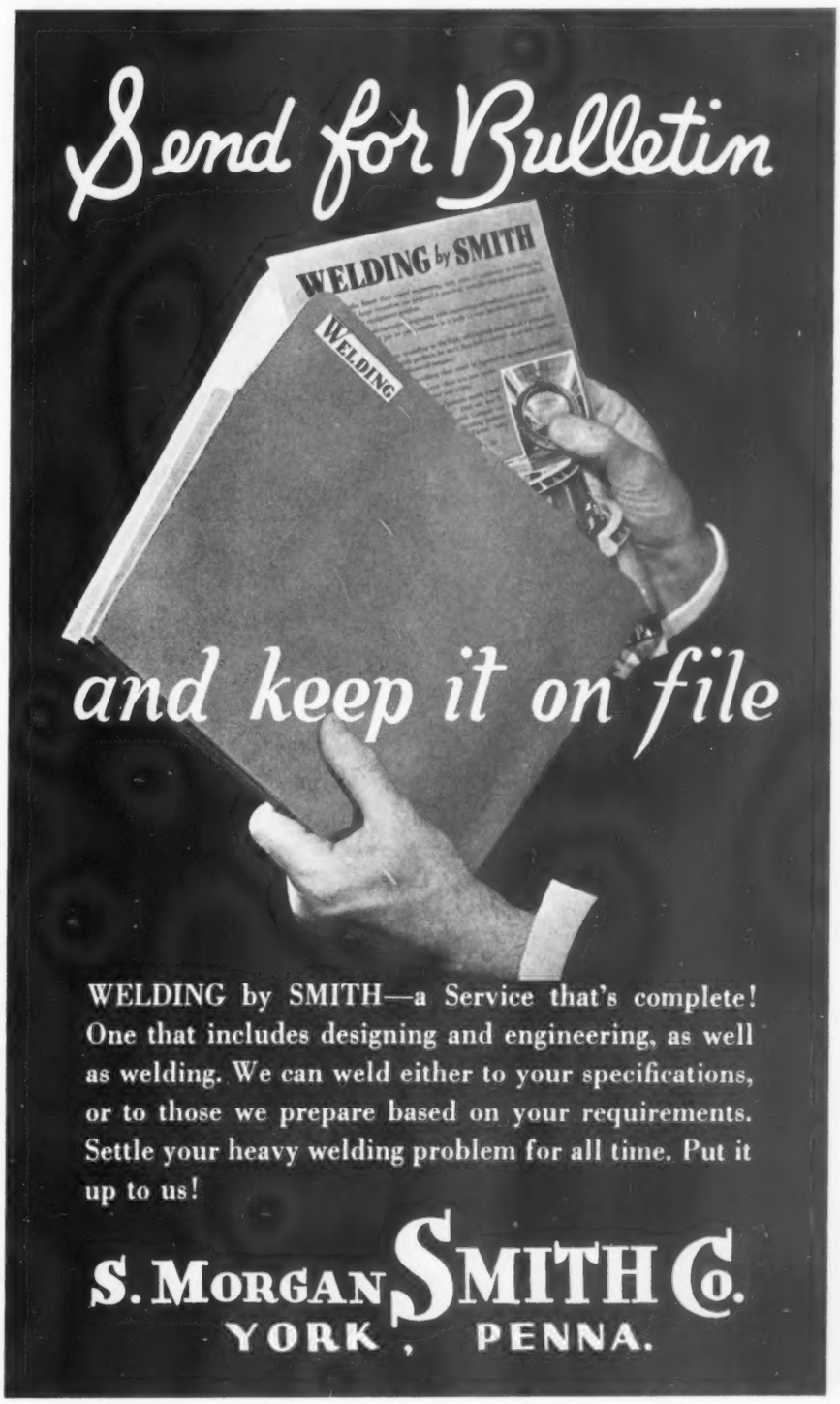
Cleveland—Steel pipe distributors note little improvement in movement of stocks compared with January. This being a short month many feel that total business booked during February will fall below January. Domestic requirements are practically at a standstill while industrial needs have shown only moderate improvement. With the exception of the city of Cleveland's watermain project, no large jobs are pending.

Chicago — While several fairly large lots of cast iron pipe are pending, the small number of new inquiries gives an unfavorable outlook for the next 30 days. Pipe producers are counting on only moderate improvement with approach of spring and anticipate expenditure of federal funds for municipal work will continue smaller than a year ago. Cast pipe prices are unchanged, with future revisions dependent largely upon what changes, if any, are made in pig iron.

New York—A. W. Banko, Inc., Hastings-on-Hudson, N. Y., is low on a water line project for Avenue P, Brooklyn, taking a heavy tonnage of large-diameter steel pipe, bidding approximately $377,000. Slightly more than 100 tons of cast iron pipe and fittings are required. Cast pipe buying continues centered in fill-in needs. R. D. Wood & Co., Florence, N. J. is low on about 100 tons, 8 to 12-inch, for New Rochelle, N. Y.

Washington — Missouri Rolling Mill Co., St. Louis, is low on 20,000 seven-foot steel line posts and parts, department of commerce, at $11,344, bids Feb. 10, schedule 28966.

San Francisco—Although a number of new cast iron pipe inquiries are out for figures or pending, no large awards are noted. Long Beach, Calif., has just opened bids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on 248 tons of 6 and 8-inch pipe. So far this year 2571 tons have been placed as compared with 2645 tons for the corresponding period in 1937.

Birmingham, Ala. — Pipe plants continue to produce at approximately 40 per cent on a basis of three to four days a week. No notable business is reported, but some increase is evident in municipal lettings.

Seattle—Bids for the Volunteer Park-Magnolia city water system extension, involving 1000 tons or more of 20-inch and under cast iron, were opened Feb. 17. This is the largest tonnage pending in this area. Nespalem, Wash., has awarded a system improvement contract to W. L. Geist, Spokane, specifying steel pipe. Superior Construction Co., Portland, Oreg., is low at $17,514 for a water system at Oak Grove, Oreg., alternate cast iron, at $22,104.

Cast Pipe Placed

200 tons, 10 and 12-inch for Wenatchee, Wash., to American Cast Iron Pipe Co., Birmingham, Ala.

Cast Pipe Pending

1000 tons or more, 20-inch and under, Volunteer Park-Magnolia extension, Seattle; bids in Feb. 17.
600 tons, Minneapolis; American Cast Iron Pipe Co., Birmingham, Ala., low.
250 tons, 3 to 6-inch and fittings, Collins water district, Portland, Oreg.; bids in Feb. 18.
248 tons, 6 and 8-inch, Long Beach, Calif.; bids opened.
180 tons, 4 to 8-inch for Tenino, Wash.; bids in.
Unstated tonnage, 15,000 feet of 6 and 8-inch, Friendship, Wis.; bids Feb. 21.

Steel Pipe Pending

100 tons, welded steel and galvanized, small sizes, Panama schedule 3329; Albert & Davidson Pipe Corp., Brooklyn, low, bids Feb. 11.
Unstated 30,000 feet 2 to 8-inch Lowell district, Wash.; bids Feb. 25; Parker & Hill, Seattle, engineers.

Wire

Wire Prices, Page 81

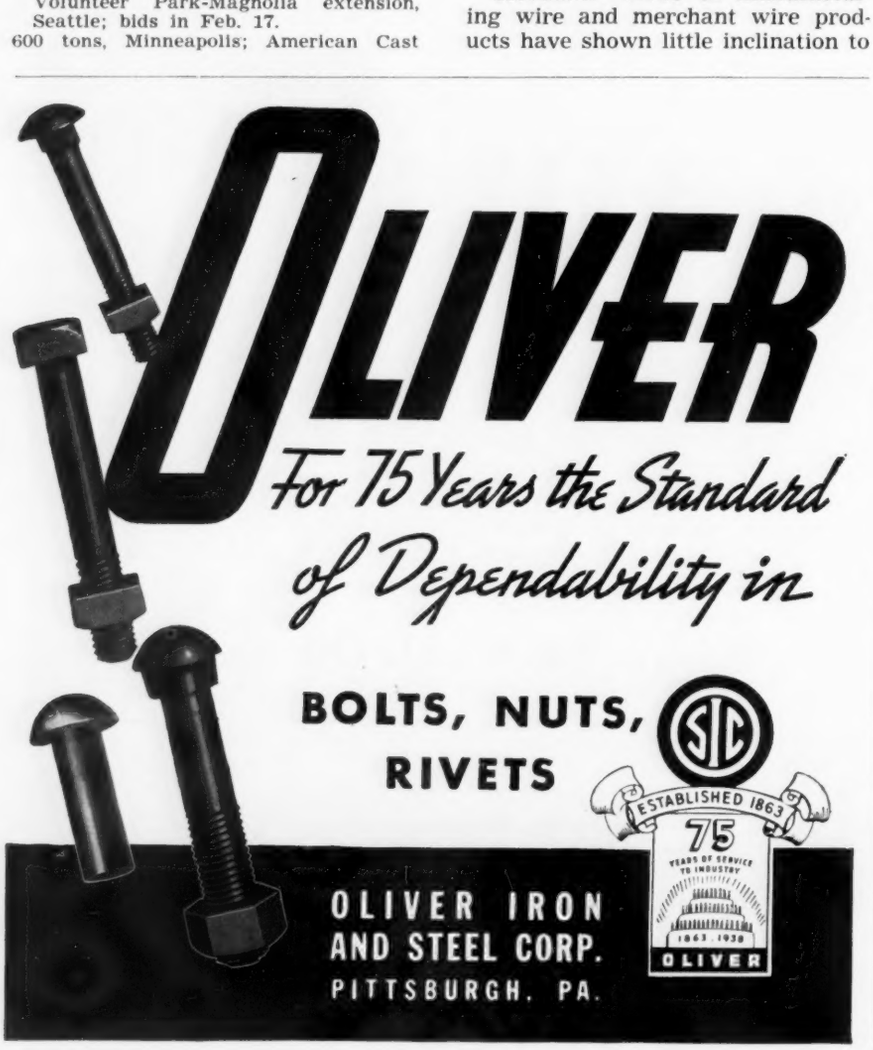
Pittsburgh — Price uncertainties have been holding off buying, with spring demand keeping the mills slightly active and production on about the same levels as last week. Producers are optimistic that some business will show up after announcement of second-quarter prices last week.

Cleveland—Users of manufacturing wire and merchant wire products have shown little inclination to buy for other than fill-in purposes. Needs of partsmakers supplying the automotive trade remains disappointing due to lack of releases against finished parts. Demand from agricultural centers has improved somewhat, but not to the extent hoped for. Prices of wire, wire products and rods have been reaffirmed for second quarter.

Chicago—Demand for manufacturers' wire remains fairly steady, with little improvement in early prospect. The automotive industry, however, is expected to provide some stimulus to business next month in view of anticipated increases in assemblies. Announcement of second quarter's prices also is counted on to remove some of the hesitancy now prevailing. Merchant wire products continue dull and shipments are below the tonnages ordinarily moving at this time for stocking distributors. The outlook for sales in farm districts is moderately favorable despite the slow pace of industrial activity.

Boston—Wire buying continues light, but well diversified, most incoming volume being for small orders with prompt delivery specified. There is no advance purchasing and some business is being held up until consumers are urgently in need. Rod buying is sluggish.

Birmingham, Ala.—Wire products which a few days ago slackened off somewhat from previous weeks, has evidenced no material change over the past week, although demand is described as satisfactory.



Rails, Cars

Track Material Prices, Page 81

While slightly better demand for railroad equipment is shown pending action by the interstate commerce commission on the application for a 15 per cent increase in freight rates. This action may come within the next two or three weeks and while most railroads will not likely start buying equipment until they can benefit from whatever increase in revenue may be gained there will undoubtedly be some which will show better interest.

The Milwaukee road has been authorized by federal court to issue equipment trust certificates in connection with the purchase of four locomotives and the building of 55 passenger cars and 464 flat cars. Locomotives will be of the Hiawatha type and will be purchased, while the cars will be built in the road's shops.

Union Pacific is resuming freight car building at various shops, planning to complete a program inaugurated last October for the

production of 2600 cars. Of this number, 1700 cars remain to be completed.

Other carriers are marking time in equipment buying, and purchases of track material also are slow. A few additional rail orders are expected to be placed shortly, with additional buying looked for after the decision on the rate case.

Interborough Rapid Transit, New York, is taking tentative figures on trucks for 50 new subway cars, with plans for bodies expected to be available for figuring March 1.

Car Orders Placed

Canadian National, 10 cafe-sleeper cars and six dining cars, to Canadian Car & Foundry Co. Ltd., Montreal.

Chile Exploration Co., 12 dump cars, to the Differential Steel Car Co., Findlay, O.

Philadelphia Rapid Transit Co., 20 trolley cars, to St. Louis Car Co., St. Louis.

Locomotives Placed

Maine Central, one gasoline-mechanical locomotive, to the Plymouth Locomotive Works, Plymouth, O.

Rail Orders Placed

Board of transportation, New York, 500 tons for independent subway system, to Bethlehem Steel Co., Bethlehem, Pa.; bids Feb. 15.

Car Orders Pending

Chicago, Milwaukee, St. Paul & Pacific, 464 flat cars and 55 passenger cars. Authority to issue trust certificates for building of this equipment granted by federal court.

Locomotives Pending

Chicago, Milwaukee, St. Paul & Pacific, four Hiawatha-type steam locomotives.

Buses Booked

American Car & Foundry Motors Co., New York: Thirteen 30-passenger for Gary Railways Co., Gary, Ind.; ten 37-passenger for Conestoga Transportation Co., Lancaster, Pa.; five 30-passenger for Los Angeles Railway Corp., Los Angeles; four 31-passenger for Citizens Rapid Transit Corp., Alexandria, Va.

Twin Coach Co., Kent. O.: Eighteen 31-passenger for Tacoma Railway & Power Co., Tacoma, Wash.; twelve 27-passenger for South Carolina Power Co., Charleston, S. C.; seven 41-passenger for Baltimore Transit Co., Baltimore; seven 35-passenger for Capital Transit Co., Washington; three 35-passenger for Gloucester Auto Bus Co., Gloucester, Mass.

Semifinished

Semifinished Prices, Page 81

Demand for semifinished is at the bottom, with buyers holding off and using up current stocks while awaiting price action. The adjustment on cold-finished sheet prices has clouded the situation somewhat and has acted as a brake on semifinished buying because of possibilities of further adjustments later on. Reaffirmation of prices on the same basis as announced Friday will probably have a stabilizing effect.

Shapes

Structural Shape Prices, Page 80

New York—Structural steel inquiry is slightly heavier, more work being out for estimates. An increase is expected shortly in world's fair building requirements, structures to be erected by exhibitors. Steel for buildings to be erected by the fair organization is already under contract and is now being fabricated and erected. The largest new award includes 5900 tons to American Bridge Co., Pittsburgh, for grade crossing work at Lynbrook, N. Y.

Pittsburgh—Structural market is holding steady, with largest inquiry being from the Mellon estate in Washington for the new museum

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building there. Hold-offs on orders due to price uncertainties have been quite noticeable but producers expect an influx after stabilization of prices following last week's reaffirmation.

Cleveland—Structural fabricators report no improvement in awards, with projects limited to small tonnages. Improvement expected in the number of new projects has failed to materialize with most private concerns shelving proposed expansion plans for the immediate future. Public work is holding up fairly well with most interest centered around the Main street bridge, Cleveland, involving some 9000 tons, on which bids will be advertised within the next 30 days. Fabricated prices remain weak.

Chicago — Structural business holds around average for the year to date, with lack of large individual lots holding total volume at a relatively low level. Little change is shown in number of smaller jobs. Bids have closed on the Clarksville, Mo., dam, while a date for bids on the Omaha, Neb., bridge has yet to be set.

Philadelphia — Dick Smith Engineering Co., Hazelton, Pa., is low at $675,000 on Potomac river bridge, Hancock, Md., taking 2600 tons. Bids were somewhat lower than when previously taken. State work continues predominant with steel for a number of jobs yet to be bought totaling 15,000 tons. Private construction continues to lag with considerable industrial expansion work held up.

Buffalo—Plans are being drawn for a new single deck arch bridge across Niagara river at the site of the structure wrecked by ice in January. It is to be erected by the International Railway Co. at a cost of about $1,500,000. Suggestions are also made for a second bridge by New York and Ontario, to be toll-free eventually.

San Francisco—The San Francisco Bridge Co., submitted the low bid on the general contract at $960,000 for water front improvement at Alameda, Calif. The largest recent award went to Columbia Steel Co., San Francisco, involving 318 tons for the San Pedro branch line of the Southern Pacific Co. While considerable new work is expected to develop shortly no new inquiries of importance were reported. To date this year 7283 tons have been placed as compared with 18,414 tons in 1937.

Seattle—Largest contract of the year to date has been taken by Koppers Corp., Baltimore, low bidder at $468,000. Koppers and Mississippi Valley Structural Steel Co., St. Louis, submitted identical bids of $34,545 for furnishing bulkhead gates for the same project, tonnage unstated. T. E. Connally, San Francisco, is low bidder at $316,142 to reclamation bureau at Yakima, Wash., for a unit of the Roza project.

Shape Contracts Placed

5900 tons, grade crossing eliminations, Long Island railroad, Lynbrook, N. Y., to American Bridge Co., Pittsburgh; Poirier & McLane Corp., New York, general contractor.

1900 tons, sludge and filter building, Detroit, to Fort Pitt Bridge Works, Pittsburgh.

1000 tons, 41 gate frames, for Coulee dam, to Koppers Corp., Baltimore.

545 tons, post office, Station Canal street, New York, to Bethlehem Fabricators Inc., New York; through G. F. Driscoll Co., Brooklyn.

466 tons, teachers college, Lockhaven, Pa., to Phoenix Bridge Co., Philadelphia.

400 tons, junior high school, Braddock, Pa., to Keystone Engineering Co., Pittsburgh.

380 tons, building, Union Industries Inc., Stamford, Conn., to Bethlehem Steel Co., Bethlehem, Pa.

350 tons, state fair building, Springfield, Ill., to Illinois Steel Bridge Co., Jacksonville, Ill.

318 tons, San Pedro branch line bridge for Southern Pacific Co., awarded by United States Engineer office, Los Angeles, to Columbia Steel Co., San Francisco.

245 tons, building, Consolidated Edison Co., Worlds Fair, New York, to Belmont Iron Works, New York; through A. L. Hartridge Co., New York.

240 tons, tertianship building, Auriesville, N. Y., to Ernst Iron Works Inc., Buffalo; Boehm Bros., Buffalo, general contractor.

210 tons, addition and alterations, Johns-Manville Corp., Richmond, Ind., to Indiana Bridge Co., Inc., Muncie, Ind.

200 tons, plaster warehouse, National Gypsum Co., Fort Dodge, Iowa, to Buffalo Structural Steel Co., Buffalo.

190 tons, building, Montgomery Ward & Co., Waterloo, Iowa, to Des Moines Steel Co., Des Moines.

190 tons, dormitory and union building, Kalamazoo, Mich., to Joseph T. Ryerson & Son Inc., Chicago.

160 tons, buildings, National Institute of Health, Bethesda, Md., to Barber & Ross Co. Inc., Washington; George A. Fuller Co., Washington, D. C., general contractor.

150 tons, bridge, Fresno, Mont., to

Shape Awards Compared

	Tons
Week ended Feb. 19	12,814
Week ended Feb. 12	8,748
Week ended Feb. 5	10,264
This week, 1937	18,291
Weekly average, year, 1937	16,060
Weekly average, 1938	14,072
Weekly average, January	17,978
Total to date, 1937	224,185
Total to date, 1938	112,574

Includes awards of 100 tons or more.

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Joseph T. Ryerson & Son Inc., Chicago.
145 tons, 3-story storage and office building, Flushing, N. Y., to Long Island Iron Works, New York.
140 tons, store building, S. H. Kress & Co., Blytheville, Ark., to Fort Smith Structural Steel Co., Fort Smith, Ark.
105 tons, bridge FAP 186B, Sanborn county, South Dakota, Des Moines Steel Co., Des Moines, Ia.
100 tons, shapes and miscellaneous iron work, school, Ardena, N. J., to Hudson Steel Works, Jersey City, N. J.

Shape Contracts Pending

3000 tons, museum of modern art, Mellon gallery, Washington; Marc Eidlitz & Son, New York, general contractor; steel contract in about two weeks.
2600 tons, bridge, Hancock, Md.; Dick Smith Engineering Co., Hazelton, Pa., low on general contract at $675,000.
2025 tons or more, sheet piling, improvement Alameda, Calif., water front for navy department; San Francisco Bridge Co., San Francisco, low at $960,000.
1050 tons, apartment, Garlock Corp., White Plains, N. Y.
900 tons, state hospital buildings, Warren, Pa.
700 tons, state hospital and power house, Scranton, Pa.
502 tons, bridge, Hinton, W. Va.
500 tons H-piling, Washington-Idaho bridge; bids at Olympia, March 1.
450 tons, bridge, Huntington, W. Va.
400 tons, school, Salem, N. Y.; bids March 3.
360 tons, walls and control gates, Chicago river; bids to Chicago sanitary district March 10.
300 tons, school, Highland, N. Y.; bids Feb. 18.
300 tons, school, Hadley, N. Y., Lange-Finn Construction Co., Albany, low bidder.
300 tons, school, Cynwyd, Pa.; new bids asked.
282 tons, including soft structural bars, Panama schedule 3329; Inland Steel Co., Chicago, low; bids Feb. 11.
275 tons, locomotive shops, Western Pacific railroad, Sacramento, Calif.
265 tons, including plates and concrete bars, Roza project; T. E. Connally, San Francisco, low.
250 tons, bridge, Pocahontas, Ill.
250 tons, school, Fort Anne, N. Y.; bids Feb. 24.
250 tons, building addition, Curtiss Aeroplane Co., Tonawanda, N. Y.; bids Feb. 19.
240 tons, state highway underpass FAGM-3, Fairfield, Iowa.
230 tons, warehouse building, Steel Sales Corp., St. Louis.
208 tons, 3-span highway project, Erie county, New York; bids March 1, department of public works, Albany.
200 tons, government warehouse, Coran, Calif.; bids to United States department of interior, Denver.
200 tons, Kress store building, San Pedro, Calif.
200 tons, apartment building, Raleigh Corp., Philadelphia.
160 tons, part 2, Wernersville state hospital, Wernersville, Pa.; Irwin & Leighton, Philadelphia, low $352,700.
155 tons, group 21, spillways, flumes and other work, Johnson section, supply canal, Central Nebraska public power and irrigation district, Lincoln; bids March 4.
144 tons, steel sheet piling, bureau of supplies and accounts, navy department, delivery eastern yard; L. B. Foster Co., New York, low; bids Feb. 11; schedule 2754, lot 84, quoted 2.375c, delivered.
140 tons, repairs to truss span, Chicago, Rock Island & Pacific railway, Ponca City, Okla.
133 tons, building Eastern state penitentiary, Gratersford, Pa.; Joseph R. Farrell, Philadelphia, low at $58,843.
131 tons, including H-piling, Washington state highway projects; bids at Olympia, March 1.
100 tons, Montgomery-Ward store building, Cambridge, O.
100 tons, warehouse, for J. G. Pieri & Co., Buffalo, wholesale grocers.
100 tons, school, Belfast, N. Y., Bley & Lyman, Buffalo, architects, bids Feb. 25.

Coke By-Products

Coke, By-Product Prices, Page 81

New York—Buying of distillates is slightly ahead of last month, but still far from brisk. Shipments are about in line with sharply reduced output. Supplies are not being accumulated in volume and benzol is rather short. Toluol and xylol have suffered from light buying by lacquer makers, reflecting lower automobile production. The chemical industries have not curtailed buying as sharply as the lacquer trade. Naphthalene is dull, although the jobbing trade is beginning to place some seasonal business. Phenol is slow, notably to industrial outlets. Prices are unchanged.

Reinforcing

Reinforcing Bar Prices, Page 81

New York—For the first time since Jan. 4, New York state is opening bids March 1, on highway and bridge projects, although reinforcing tonnage required is not heavy. New inquiry is coming out slowly and pending volume on which estimates are in approximates 4000 tons, including a dam in Pennsylvania, which will be placed by a Bogota, N. J., contractor. Recent bids on close to 1700 tons for WPA work have not been formally accepted by the procurement division and the contracts are held in abeyance. Prices on small-lot business are holding fairly well. Charles Vachris, Inc., Brooklyn, is low on the Meeker avenue bridge approach piers, that borough.

Pittsburgh—Inquiries and awards continue to slow up slightly, only two awards of any size appearing during the past week. Inquiries are small.

Cleveland—Inquiries continue limited to small tonnages and are few in number. Cuyahoga county engineers report advertisements for

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the first of seven contracts for the Main street bridge, Cleveland, are temporarily being held up waiting for PWA approval. Fabricators are operating on greatly reduced schedules compared with this time a year ago. Most are carrying more than enough stocks for current needs and are buying only for fill-in purposes. Fabricated prices are still soft although no real test has recently been offered.

Chicago—Pending business in concrete bars is fairly heavy, but new inquiries recently have been few and involve only small lots. A substantial tonnage of bars will be required for state bridge work, with shipments for such construction expected to increase during coming weeks. Pending work includes 700 tons for a Sears-Roebuck store here and 300 tons for a building at the Illinois state fair grounds, Springfield.

Boston—Closing Feb. 24, New Hampshire has highway projects out taking 200 tons, the first road and bridge inquiries this year. A moderate upturn in such work is indicated during the next two months. Small-lot buying has picked up slightly, although inquiry as a whole still lags.

Philadelphia—Lit Bros. department store, Philadelphia, is asking new bids on its warehouse jobs, which is redesigned to concrete construction, taking 1400 tons of bars. Several other fair lots are pending but mostly for Pennsylvania state institutional programs. American Steel Engineering Co., Philadelphia, was awarded 850 tons of bars for the Mellon national art gallery, Washington, and Republic Floor System Co., New York, 1250 tons for the same project. Few private jobs of any consequence are appearing.

San Francisco—The reinforcing bar market was the most active one with 981 tons awarded. This brought the year's aggregate to 17,950 tons, compared with only 4488 tons a year ago. Soule Steel Co., San Francisco, took 287 tons for the Treasury department, San Francisco, under invitation No. 4987. Bids open on March 16 for section B and C of a landing mat at Hickam Field, T. H., involving approximately 300 tons.

Seattle—New business consists mostly of small lots for school structures. Industrial demands are at low ebb, and rolling mills are operating on part time. Bids were opened Feb. 10 at Cody, Wyo., for the Heart Mountain canal, Shoshone project, involving 700 tons. Prices remain firm but volume is below normal.

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Reinforcing Steel Awards

1376 tons, bureau of reclamation, Gila project, Blaisdell, Ariz., 1160 tons; Rutledge, Tex., 155 tons; and Salt river project, Phoenix, Ariz., 61 tons; to Southern States Steel Co., Madison, Ill.

1250 tons, Mellon national art gallery, Washington, to Republic Floor System Co., New York.

850 tons, Mellon national art gallery, Washington, to American Steel Engineering Co., Philadelphia.

616 tons, buildings, National Institute of Health, Bethesda, Md., to Sweets Steel Co., Williamsport, Pa.; George A. Fuller Co., Washington, general contractor.

287 tons, treasury department, San Francisco, invitation 4987, to Soule Steel Co., San Francisco.

200 tons, highway projects, Warren and Sussex counties, New Jersey, to Igoe Bros., Newark, N. J.; two contracts, through Jannarone Construction Co., Bellville, N. J., and Tidewater Stone & Supply Co., Newark.

141 tons, addition, state hospital, Stockton, Calif., to unnamed interest.

100 tons, state highway No. 43, Cincinnati, to Penker Construction Co., Cincinnati.

100 tons, mesh, finance building, Harrisburg, Pa., to American Steel Engineering Co., Philadelphia; through McCloskey & Co., Philadelphia.

Reinforcing Steel Pending

1400 tons, warehouse, Lit Bros., Philadelphia; new bids asked.

1000 tons, administration building, Chicago park board, Chicago.

617 tons, group 21, spillways, flumes and other work, Johnson section, supply canal, Central Nebraska Public Power and Irrigation district, Lincoln; bids March 4. Work also includes several hundred tons of steel sheet piling.

350 tons, Wisconsin memorial union, Madison, Wis.

300 tons, section B and C, landing mat, Hickam Field, T. H.; bids March 16.

300 tons, office building, for board of permanent seat of government, Jefferson City, Mo.; bids Feb. 15.

289 tons, paint and oil storage warehouse, Mare Island, Calif.; bids opened.

175 tons, approach piers, Meeker avenue bridge over Newtown creek, Brooklyn, N. Y.; Charles F. Vachris, Inc., Brooklyn, low; project also takes several hundred tons of steel sheet piling.

156 tons, Washington state highway projects; bids at Olympia, March 1.

156 tons, state purchasing bureau, Baltimore; bids in.

150 tons, bridge, route 128, Washington county, Illinois.

150 tons, U. S. veterans' hospital, Roan-

Concrete Bars Compared

	Tons
Week ended Feb. 19	**4,920**
Week ended Feb. 12	**5,570**
Week ended Feb. 5	**5,931**
This week, 1937	**2,968**
Weekly average, year, 1937	**6,266**
Weekly average, 1938	**5,703**
Weekly average, January	**6,446**
Total to date, 1937	**24,120**
Total to date, 1938	**45,625**

Includes awards of 100 tons or more.

oke, Va.
150 tons, platforms and subway, Elizabeth, N. J., for Central Railroad of New Jersey; bids in.
135 tons, reinforced concrete highway, Concord, Boscawen and Franklin, N. H.; bids Feb. 24, state highway department, Concord, N. H.; work is section of Daniel Webster highway.
100 tons, high school, East Moline, Ill.

Pig Iron

Pig Iron Prices, Page 82

Pittsburgh—Markets here continue quiet, with no noticeable increase in inquiries. The most important factor in the market is the number of small lot sales for immediate use. First quarter pig iron prices are being reaffirmed.

Cleveland—Pig iron producers report that most of the tonnage carried over from fourth quarter has been released. New business is still limited to individual carlot orders. Foundries supplying castings for the automotive industry, refrigerator and other household equipment manufacturers are still on a one or two-day weekly schedule in many instances. Stocks of most consumers are greatly depleted.

Chicago—Pig iron shipments show little change since a month ago, but a small increase is anticipated for February as a whole. Some foundries are showing a little interest in taking larger tonnages, activity among producers of automotive castings have improved slightly the past week. A substantial tonnage of iron still is due against old contracts, but buyers prefer to await the announcement of second quarter quotations before drawing extensively against previous commitments. The $24 market for No. 2 foundry and malleable is tested by only small lots.

Boston — Large pig iron consumers, many with substantial stocks, continue to draw on supplies without much replacement buying. Early resumption of buying by this class of users while naturally dependent on the trend in demand, may be held back by hope prices will be lower before new stocks are urgently needed. Sellers, however, expect no reduction soon. Buying is slack and confined to small lots as needed. There has been slight, if any, change in melt, only a few foundries being moderately active.

New York—While unimproved in actual tonnage, sentiment in pig iron circles here is a trifle better. Somewhat less concern is noted with respect to prices and should sellers generally, as is now anticipated, shortly reaffirm prices for second quarter, there might be some pick-up in buying. Little immediate buying for second quarter should materialize. Some conservative trade interests look for little more than a modest increase in any event, for a number of the larger consumers are still fairly well stocked. Export demand is still confined largely to scattered inquiry, with little actually being placed.

Philadelphia—The navy department will take bids until March 18 on 14,000 tons of 78 to 82 per cent ferromanganese for delivery at the Philadelphia navy yard. It is understood the material is for stock. Bids were taken last fall on both. ferromanganese and manganese ore but no award was made. Pig iron buying is still confined to carlots. Few foundry consumers have inventories of any consequence. Most foundries are operating at two to four days a week.

Birmingham, Ala.—Pig iron markets here continue comparatively quiet, but with a more optimistic feeling evident. The district will gain a furnace during the week with addition of a stack at Fairfield by the Tennessee Co., making a total of 12 blowing in the district. Shipments are somewhat below the make.

Buffalo—While pig iron producers report sporadic improvement in shipments, orders are being placed to cover immediate requirements only. Aggregate tonnage is about equal to the slightly improved volume of January, but dealers report improvement is not steady. Orders are varied although malleable melt is reflecting the slow demand from automotive sources. Prices remained the same with no talk of any changes.

Toronto, Ont. — General improvement in the iron and steel industry is reflected in better demand for merchant pig iron. Canadian National railways has placed an order for rolling stock with Canadian Car & Foundry Co., Montreal, to cost $1,150,000 the first on a new series of orders. Merchant pig iron sales climbed above the 2000-ton mark for the week and melters are showing interest in demand. Foundry iron continues the most active with turnover of some 1600 tons and malleable about 500 tons. Little demand is reported for basic iron.

Tin Plate

Tin Plate Prices, Page 80

Pittsburgh—Tin plate markets in this district are more active, with production being estimated at

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around 50 per cent; cold rolled showing increased activity, with hot mills holding strong. Stabilized prices enabling packers to enter orders against spring and early summer needs are aiding the picture somewhat.

New York — A modest improvement is noted in tin plate specifications, with releases coming out from diversified sources. Volume is still far behind that of a year ago, but compared with a month ago tonnage has made a fair percentage increase. Requirements of the fish canning season are contributing in an important degree to current improvement, it is said.

Scrap

Scrap Prices, Page 84

Philadelphia—A somewhat easier tone has developed in the scrap market with several grades off 50 cents or more. This reflects softer export prices and failure of domestic consumers to place orders of any size. One domestic melter of No. 2 steel, stove plate and grate bars has dropped the buying price to $12.50 but is getting little material at that level. While it is doubted if mills could buy large tonnage of No. 1 heavy melting steel at less than $15 a flat price of $14.50 reflects the actual situation. In the export market offering prices have dropped 50 cents to a basis of $14.50 for No. 1 steel and $13.50 for No. 2. While $15 might be paid for No. 1 if necessary to complete a cargo exporters feel the lower prices are justified in view of the domestic situation. Recently $16 and more was paid for No. 1 against foreign orders booked at about that level. The export movement has not slowed, buying for England and Italy now being supplemented by purchases for Japan at two nearby points. In the domestic market a number of miscellaneous grades are off, due to slower demand. Blast furnace scrap is entirely nominal.

Pittsburgh — Unconfirmed rumors of sales at $14.50 and some actual sales at $14, with nothing reported below that figure, represent pretty well the picture on heavy melting steel in this district. Lifeless markets continue, with no changes of interest within sight.

Cleveland—So little new business is being done in iron and steel scrap that it is almost negligible. Occasional carloads are being shipped on old orders covering principally heavy melting steel, pressed sheets and blast furnace material. Quotations have not changed but the price is regarded as nominal.

Cincinnati—The iron and steel scrap market continues quiet. Current prices fail to tempt mills into new commitments and neither brokers nor dealers desire to take on much more speculative tonnage. Prices are nominal, but miscellaneous transactions justify a 50-cent decrease in sheet clippings and a stronger position for No. 1 machinery cast.

Chicago — Scrap prices are easier, with heavy melting steel down 75 cents on a purchase by a local mill at $12. Most other grades also are lower. Offerings are more than ample to accommodate present demand as consumers are restricting purchases. Railroad offerings are only moderate, however, since some roads are holding their accumulations in anticipation of better prices later in the year.

Boston — Dullness still depresses domestic buying of scrap. Prices are nominal on most grades with No. 1 machinery cast somewhat weaker, some business having been done under $15 delivered. The export situation appears slightly more mixed, especially as to No. 1 heavy melting steel. In recent boat loadings less material of this grade has been included and some shipments are composed of a larger percentage of No. 2 cast, for which brokers are paying $12, dock. While No. 1 steel for dock delivery went off 50 cents to $14, dock, two weeks ago, slightly better would probably be paid for tonnage. At Portland, Me., 2000 tons of scrap rails have been loaded for Japan, the boat touching at New York to complete cargo.

New York—Prices on several grades of scrap, including stove plate, grate bars and cast for local delivery are easier, although lack of domestic buying makes quotations nominal on numerous classes. Scrap for export is coming out less freely and foreign volume has slowed down with reports that some brokers are about to drop bids for No. 1 steel for export 50 cents, to $13, barge. The price has been $13.50 since late last year.

Buffalo—Weakness continues to dominate the iron and steel scrap market. Nevertheless, the bid of $13 a ton for No. 1 heavy melting steel was kept in the market by the principal consumer. It was not an open market bid as the mill was only taking scrap from "regular" sellers. Dealers appear more willing to do business at this level as the mill reported orders were being enlarged. A $2 differential prevails on No. 2 material while No. 1 bundles are placed at $11.50 a ton and No. 2 bundles at $10. Mill reports more than 21,000 tons of scrap have been shipped. An embargo on shipments is still in effect at other mills.

St. Louis—The market for iron and steel scrap continues dull, weak and lacking in developments of interest or importance. Outlook for a change for the better in these conditions is not promising. The only sale recently reported was of 2000 tons of No. 2 heavy melting steel to an east side mill. This tonnage was forced on the market and brought $11.50 per ton, and dealers have adjusted their buying price accordingly. Receipts from all quarters continue light, but are apparently more than requirements. Virtually nothing is moving from the country, and

the industries are originating less material than in many months.

Detroit — Fisher lists closing last week brought fractionally lower prices, and the drying up of speculative buying has had a further depressing influence. In view of the slight reductions noted, and the total absence of trading in most grades, no changes are being made in current price quotations.

It will be about 10 days before further scrap lists come out. Automobile companies are advising prospective bidders to anticipate somewhat heavier tonnages than originally announced, indicating an upward movement in car assemblies.

Birmingham, Ala. — The scrap market is unchanged and at the slowest tempo of several months. While no price change has been announced, the trend, probably, is somewhat downward.

Seattle — Inquiry from Japan is more active but some prospective buyers are having difficulty in arranging letters of credit and getting import permits. Several thousand tons of old commitments are being forwarded to the Orient from Pacific coast ports. In the absence of representative sales, prices are nominally unchanged. The domestic turnover is limited as rolling mills have ample stocks in storage. Dealers are buying attractive lots in the expectation of improved export demand within 60 days.

Toronto, Ont. — Demand for iron and steel scrap is spotty with only special grades drawing attention. Heavy melting steel and turnings are in demand from steel mills but local dealers are making only odd lot shipments at this season. Foundries continue to show interest in machinery cast and stove plate and it is stated that supplies are somewhat below requirements. Other grades are moving slowly and large stocks of automobile scrap have been accumulated in the various yards around the city.

Local dealers state that new offerings are limited. Prices show a firmer tendency and while prices have not been revised some dealers are offering 50 cents to $1 per ton above the market.

Warehouse

Warehouse Prices, Page 83

Pittsburgh — Sales continue on about the same basis, with the wide variety of customers taking small lots and gradually depleting inventories. No demand has arisen from the lower cold-rolled sheet price. This condition will probably be changed following clarification of prices last Friday.

Cleveland — Warehouse distributors report some improvement in shipments. Distributors still have excessive stocks in some instances but the reverse is true in a few items such as structural material and certain grades of sheets. No official announcement has been made by warehouse distributors here about adjusting prices on cold-rolled sheets to conform to the new mill quotations.

Chicago — In number of orders business holds around the 1936 rate but is about 25 per cent behind 1937. A slight upturn the middle of February is common and is not regarded as the start of any sustained recovery. Prices are unchanged following the recent reduction in cold-rolled sheets.

New York—Warehouses have reduced cold-finished sheet grades recently marked down by mills, No. 20 gage now being quoted 5.20c. Other sheet quotations are unchanged, but as in other items, there is scattered shading. Volume with jobbers lags, moderate improvement one day falling off the next. Demand for steel entering into construction work is dull.

Buffalo — Uncertainty over prices is mirrored by the slow demand for warehouse products. Distributors announced a cut in high speed tool steel from 80 cents a pound to 67 cents. Prices in other tool items were expected to follow. Consumers continued to delay making purchases in hopes of lower prices.

Philadelphia — Galvanized sheets have been reduced $8 per ton, to 4.90c for 25 bundles and over, 5.25c for 10 to 24 bundles and 5.40c for less than 10 bundles. The action results from weakness which has been apparent for some time. Jobbers are also following mill reductions on cold-rolled sheets. Small order business continues in steady volume. Jobber stocks are still somewhat above normal but are being systematically reduced.

Detroit — Warehouse trade continues slack, and beyond the adjustment in cold-rolled sheets no immediate changes in prices are expected. A change has been effected in quantity differentials on galvanized sheets for delivery in the metropolitan area only. Base price of 5.40c applies to lots of 400-1499 pounds; under 400 pounds add .50c to make the price 5.90c; from 1500-3749 pounds deduct .25c, making 5.15c per pound; from 3750-7499 pounds deduct .40c, or 5.00c per pound; and on lots of 7500 pounds and over deduct .60c to make the price 4.80c. The new schedule compares with former deductions of 10c and 15c on lots over 1500 pounds.

As yet warehouse sellers have noted no increase in business resulting from numerous tool and die programs which are in the active stage.

Seattle—Prices are unchanged but buyers are hesitant, hoping for schedule revisions. Volume has improved slightly, but seasonal buying is still below normal. There is practically no mill business, sales being in small lots out of stock, sheets probably in best demand. Alaska canneries are beginning to place some orders. The lumber industry is generally postponing buying except for immediate needs.

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Steel in Europe

Foreign Steel Prices, Page 83

London — (*By Radio*)—Middlesbrough foundry pig iron is beginning to accumulate and hematite iron is available for export, but demand is scarce. The market for constructional steel is strong but delivery is available for second half only. Export demand is limited. Sheffield manufacturers have booked a substantial contract for a Russian steelworks.

Imports of iron and steel in January totaled 308,735 tons, a gain of 20,392 tons over the 288,343 tons imported in December. January exports at 164,772 tons were 32,035 tons less than in December.

Export markets for Continental goods continue depressed and producers in France, and Belgium-Luxemburg are reducing output. Prices are weak except for sheets.

Imports of iron and steel manufactures into Great Britain from the United States in 1937 totaled a value of £3,054,000, compared with £488,000 in 1936. January imports from the United States show heavy volume, totaling £680,000, compared with £554,000 in December. Iron ore and scrap imported from the United States in January was valued at £817,000, compared with £250,000 in December and of machine tools in January £230,000 compared with £172,000 in December.

Ferroalloys

Ferroalloy Prices, Page 82

New York—While February may prove to be a poorer month than January, ferromanganese sellers look for an early improvement in shipments. Spring seasonal influences are expected to have a somewhat stimulating effect on steel production, particularly with the price situation more clarified, and this in turn should accelerate the movement of ferromanganese and a number of other important ferroalloys.

Ferromanganese is holding at $102.50, duty paid, Atlantic and Gulf ports, with little likelihood that books for second quarter will be opened much before March 15. Domestic spiegeleisen also is steady, holding at $33, Palmerton, Pa., for 19 to 21 per cent material, and $39 for 26 to 28 per cent.

Ferrotungsten is the only important ferroalloy to have undergone recent change and that was largely a nominal reduction from a spread of $2 to $2.25 to $1.95 to $2 per pound tungsten contained, freight allowed in car lots. This change reflected continued easiness in tungsten ore.

The market on tungsten ore in Europe is showing a slightly stronger tendency, but this is not indicated in the prices for domestic material, which are holding nominally at around $20, delivered consuming plant, for carlots and at around $16 to $17 on smaller lots which, at the moment, constitute virtually the only business going. This differential under the carlot price is attributed principally to the fact that the consumer is put to extra expense in the handling and blending of these scattered small lots. Meanwhile, some tonnage is being delivered on old contracts made at $23 to $25.

Chinese wolframite is quoted nominally at $25 to $25.25, duty paid, with the trend slightly higher. This strength is attributed to continued good consumption for armament purposes in Europe and to difficulty in getting ore out of China.

Bolts, Nuts, Rivets

Bolt, Nut, Rivet Prices, Page 81

Bolt and nut business is expected to reflect the somewhat better improvement anticipated in iron and steel products generally over the next few weeks. Tonnage should be bolstered by better building operations as the spring season approaches and also by heavier automotive requirements. Some ship releases should be coming through in the next few weeks, although new ship construction inquiry appears to have bogged down, at least for the present. Operations generally are holding around 30 per cent.

Prices of bolts and nuts are being reaffirmed for second quarter, following action by steel producers.

Laclede Steel Co., St. Louis, has been awarded the contract for rivet steel, eastern navy yards, at $22,654.20, bids Jan. 11, Republic Steel Corp. taking the same material for Western yards at $7913.63. Crucible Steel Co. of America booked most of tool steel requirements included in the same opening at $37,477.43, eastern yard deliveries, and $7,013.50, separate inquiry for Philadelphia.

Wrought Iron Co., Lebanon, Pa., is low on 550 tons of rivets, delivery Brooklyn and Philadelphia, bids Feb. 11, to bureau of supplies and accounts, navy department. Bulk of bids on 325 tons additional were uniform.

Nonferrous Metals

Nonferrous Metal Prices, Page 82

New York—Modification of the government's gold sterilization program coupled with a statement that some revision should be made in commodity price levels created a stronger tone in nonferrous metals last week. Enthusiasm was dampened somewhat on Friday, however, since amplification of the President's statement was interpreted as unsatisfactory. The foreign market responded to the more bullish American news and spot prices advanced over £4 in tin, £2 in copper, and about £1 in lead and zinc.

Copper—Sales of copper in the export market were reported as high as 10.17½c, c.i.f. against the previous week's close of around 9.60c. January statistics revealed a strong foreign situation although the domestic figures showed a disappointing trend. Total world refined stocks increased 34,774 tons. Market interests here await an increase in actual consumption rather than hedge buying which has increased slightly. Electrolytic held at 10.00c, Connecticut.

Lead—Purchases were at the best rate in a month but prices held on the basis of 4.50c, New York, and 4.35c, East St. Louis. Although the total turnover was not especially heavy, it was the best in over a month. The rate of shipments has gained 2000 or 3000 tons to about 36,000 per month.

Zinc—Fresh demand continued slow and all that sellers expect from the improvement in general metal market sentiment is the evolvement of a floor under the domestic market, preferably at the current 4.75-cent level.

Tin—Tin export quota for the second quarter was fixed at 55 per cent of standard tonnages, a cut of 15 points from the first quarter rate. Prices advanced rapidly during the week in anticipation of this action with Straits spot closing at 42.25c compared with the previous week's close of 40.50c. Trading was restricted as both sellers and buyers were hesitant at prevailing levels. Sales on the London Metal Exchange on Friday, however, showed improvement.

Antimony—American metal held at 13.75c, New York, for spot and 13.50c, shipment from Laredo, Tex. Resale Chinese spot was offered at 15.75c, duty paid New York, while futures were offered at 13.75c in bond New York.

National Brass & Copper Co. Inc., Lisbon, O., has filed application for membership in the Copper and Brass Research association, which will be accepted at the next meeting of the executive committee. Membership of the association now represents companies manufacturing more than 88 per cent of products fabricated from copper and its alloys.

Foundry Equipment Sales Continue Downtrend

■ Foundry equipment orders continued to decline in January, according to the Foundry Equipment Manufacturers' association, Cleveland. Net orders index for January was 76.8, compared with 111.2 in December and 190.9 in January, 1937.

Shipments also declined, the January index falling to 147.7 from December's 159.8. Shipments in January, 1937, were 177.2. Unfilled orders index for January was 147.7, against 245.5 in December and 333.3 in January, 1937.

Even Children Petition To Save Elwood Plant

■ School children and their elders in Elwood, Ind., are petitioning against rumored abandonment of American Sheet & Tin Plate Co.'s American works there. The plant was closed late in 1937 when tin plate demand fell and fears grew production would be transferred to other mills.

So aroused was the town's industrial consciousness that newspapers in full-page appeals urged readers to use a maximum of canned goods and to press their influence to retain the mill.

Constructed in 1891, the plant is less efficient than modern mills and naturally is one of the first to close when business recedes. Its capacity is 75,700 tons tin plate and normal employment is about 1500.

Fabricate Giant Pipes At Grand Coulee Dam

■ Faced by the problem of installing welded steel penstock pipe 18 feet in diameter in Grand Coulee dam in the basin of the Columbia river, Washington, the bureau of reclamation has provided for a fabricating plant on the job. Western Pipe & Steel Co., San Francisco, has been awarded the 8273 tons of steel plates and also the fabricating plant. A site is furnished by the government. This is the second instance in which fabrication on the job has been necessary, the first being at Boulder dam, where penstock pipes were 30 feet in diameter.

In Grand Coulee dam will be placed 18 pipes each about 290 feet long and 18 feet in diameter, three pipes about 290 feet long and 72 inches in diameter and 12 comparatively short pipes 14 feet in diameter. The 18-foot sections will be of plates ¾-inch in thickness. All will be welded.

Bartlett-Hayward division of the Koppers Co. has been awarded the contract for furnishing 41 gate frames for the penstock and outlet works at the Grand Coulee dam on its bid of $468,000. The frames will be of structural steel and bronze. They will be embedded in the concrete at the entrances of the outlet conduits and penstocks and will serve as seats and guides for the bulkhead gates.

Scrap Institute Adds Eight New Members

■ Eight scrap dealers were added to the membership of the Institute of Scrap Iron & Steel Inc. at a luncheon meeting of North Carolina scrap dealers in Greensboro, N. C., Feb. 6. This was the first conference of scrap dealers in the state and 44 were present.

The new members include High Point Junk & Metal Co., High Point, N. C.; Hyman Viener & Sons, Belle Isle, Richmond, Va.; Ben Schwartz Inc., Newport News, Va.; Greensboro Junk Co., Greensboro, N. C.; Harry L. Faulkner, New Bern, N. C.; Acme Junk & Waste Co., Winston-Salem, N. C.; I. Ornoff, Durham, N. C.; Salisbury Junk & Salvage Co., Salisbury, N. C.

Industry Seeks Curb on Occupational Disease

■ Air Hygiene Foundation, Pittsburgh, was told at its annual meeting Feb. 8 at Pittsburgh that within the past year six states have passed legislation compensating workmen for occupational diseases, and now 21 states and the District of Columbia have such laws. Control of these diseases is essential to avoid mounting compensation costs and loss of earning and buying power of the workman.

The foundation is a nonprofit cooperative organization for the advancement of industrial health, to which 200 concerns contribute. Research is being carried on at several centers, including Mellon institute, Pittsburgh, and the Moore school X-ray laboratory at the University of Pennsylvania.

Year's Coke Output Is Third Highest

■ By-product and beehive coke output in 1937 totaled 52,362,098 tons, compared with 46,275,200 tons in 1936, a gain of 13.2 per cent. This was exceeded only in 1928 and 1918, with 59,883,845 tons and 56,478,372 tons, respectively.

By-product coke output amounted to 49,205,798 tons, 10.4 per cent more than 44,569,100 tons in 1936. This was exceeded only by the 1929 total of 53,411,826 tons. Beehive production in 1937 was 3,156,300 tons, 85 per cent more than in 1936, and largest since 1929.

■ American Car & Foundry Co., has delivered a third "Rebel" streamlined train to the Gulf, Mobile & Northern railroad, for operation between Jackson, Tenn., New Orleans and Mobile. Two other streamlined units, designed and built by American Car & Foundry have been in operation more than two years. Baldwin Locomotive Works has delivered to Santa Fe six high-speed passenger locomotives, one of which is streamlined, for service between Chicago and La Junta, Colo.

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Four Tons of Steel Used in $4000 House

■ Nearly four tons of steel products are used in construction and equipment of the typical small dwelling costing approximately $4000, according to the American Iron and Steel Institute.

Cost of these products at the mill on the basis of current price quotations is estimated at $172, approximately 4 per cent of total cost.

Largest in weight are cast-iron products, of which 4250 pounds are used. In 3620 pounds of finished steel and iron products the largest item is metal lathing, 1160 pounds being required in walls and ceilings.

It is also estimated 440 pounds of steel nails are used, 418 pounds of galvanized gutters and downspouts, 200 pounds of flashings, 175 pounds of electrical conduit, 65 pounds of light structural shapes, 60 pounds of hardware, a 93-pound hot water tank, 13 pounds of smoke pipe, 15 pounds of sheet steel in the medicine cabinet, and 950 pounds of wrought-iron pipe and fittings.

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Reader Comments

(*Concluded from Page* 11)

while. It was something to the effect that in 1927 the Curtis Publishing Co. made 14 different tax returns at a preparation cost of $850, whereas in 1937, ten years later, it made approximately 44,500 tax returns at a preparation cost of $21,000, all of this contrasted to only one return which it had to make in Canada in each year.

Along the same lines there was some good publicity in the issue of *Life* of the same week in which the picturized story of the tax situation as it affected a typical industrial firm, Peck & Stow, in which it was also brought out that this firm paid $21,000 in social security taxes plus $2600 rent for a machine to figure these taxes out and that while sales increased 26 per cent last year, taxes increased 88 per cent.

In other words, this business of making tax returns is getting to be an industry in itself. There have been cases where the cost of filing a return exceeds the return. When a taxpayer has to spend thousands of dollars and employ many clerks and experts simply to make it possible for him to pay his taxes, it looks as though this is "rubbing salt in the wound."

Now this is the point of this letter. It is true that trade publications as a rule do not reach the general public to any considerable degree, but your readers are dependent on industry for their welfare and are voters. If every publisher would take his own case and determine how many returns he made last year and the cost of preparing same and publish that information in a "box" on the front cover of his publication, every issue, don't you thing that after a while your readers would become a little more tax conscious? We hope you will give consideration to this suggestion.

L. C. BLAKE
Curtis Pneumatic Machinery Co., St. Louis.

Week's Exports Light

Philadelphia—During the week ending Feb. 12, imports in this customs district include: Philippines, 970 tons chrome ore; Netherlands, 100 tons pig iron; Belgium, 102 tons steel sheets; 12 tons structural shapes; 11 tons steel bars; 6 tons steel bands; France, 10 tons structural shapes.

Equipment

Chicago — Machine tool orders are lagging, but inquiries are fair. The latter have been bolstered by the Milwaukee road's request for bids on a large list totaling 15 to 20 items and including boring mills, lathes, grinders, drill presses and other tools. The Santa Fe has yet to close on several pending machines, and the Virginian is inquiring for eight tools. Other railroads are marking time in equipment buying. Business elsewhere shows little change from the rate a month ago, but there is a tendency to postpone contemplated purchases. Small tool demand has spurted moderately though sales still are poor.

Boston — Increased buying and inquiry by government shops, with a scattered number of awards to New England builders, coupled with export volume, have failed to offset fully the decline in domestic industrial buying. While some shops still have substantial backlogs, domestic volume on the books is substantially lower with shipments fewer. Shop operations are curtailed further. Airplane engine builders have large orders, but are buying little equipment. Most such shops are relatively newly and well equipped.

New York — Machinery orders are few with limited volume placed against estimates since the first of the year. Only equipment urgently needed is being bought. Export volume, however, has gone far toward taking up the slack. Crane needs, especially government shops, are heavier. Victor R. Browning, Willoughby, O., is low on a 100-ton electric overhead bridge crane for Washington, D. C., navy yard at $34,990, bids Feb. 9. The TVA closes March 2 on a 275-ton overhead crane for the Guntersville power plant. The bureau of yards and docks takes bids shortly on two 35-ton locomotive cranes for the Philadelphia navy yard.

Seattle—Roadbuilding and construction machinery is in best demand with electrical goods and water system fitting reasonably active. Fabricators of marine diesel units are busy, a Seattle plant having just sold two 400-horsepower engines. Logging and lumber industry requirements are below normal. King, Columbia and Cowlitz counties, Washington, are in the market for dump trucks, tractors, bulldozers and tracklaying tractor.

Construction and Enterprise

Indiana

AUBURN, IND.—Warner Automotive Products Corp. will open a factory here about April 1 in the old Auburn Automobile Co. plant.

BLUFFTON, IND.—Houser Engineering & Mfg. Inc., 117 North Main street, Bluffton, has filed articles of incorporation with Indiana secretary of state. Company was formed to manufacture automobile equipment. Has 2000 shares no par value capital stock. Miles S. Houser, Delma Lockwood, George Slawson, Philip Dwinnell, John H. Edris, incorporators.

BRAZIL, IND.—Board of public works soon takes bids for improving sewage disposal plant and semi-circular concrete bed for Pogues run, carrying sewage from city to disposal plant. G. A. Sheehan, Brazil, engineer.

FT. WAYNE, IND.—Newly organized Metal Products Co. has taken over building at 1617 Calhoun street and will manufacture tanks and metal products.

INDIANAPOLIS—American Can Co., South East street, plans large addition to plant here, which includes constructing conveyor system over East street.

INDIANAPOLIS—Articles of incorporation have been filed with the Indiana secretary of state by Automatic Safety Gas Cap Inc., 31 East Georgia street. Company was formed with 1000 shares no par value capital stock to manufacture electrical appliances and light hardware. Lawrence C. Leavitt, Walter Fahrson, William W. Benbow, incorporators.

OAKLAND CITY, IND.—Board of public works soon takes bids for sewage disposal plant and sewerage system. Cost $150,000. T. T. Hardman, 2100 South Center street, Terre Haute, Ind., engineer.

ODON, IND. — Town board, C. A. Breedon, clerk, is making preliminary plans for waterworks plant, including 60,000-gallon elevated steel tank, deep-well pumps, watermains, and fire hydrants. Cost $60,000. WPA project. Lennox & Mathews, 833 Architects & Builders building, Indianapolis, consulting engineers.

VERSAILLES, IND.—Town board soon takes bids for sewage disposal plant and sewerage system. Cost $50,000. L. Finch, 276 Century building, Indianapolis, engineer.

VERSAILLES, IND.—Town board soon takes bids for new waterworks system, including pumping plant and distribution system, fire hydrants. Cost $50,000. L. Finch, 276 Century building, Indianapolis, consulting engineer.

Connecticut

HARTFORD, CONN.—City is making plans for enlarging South Meadow pumping station reservoir. $37,375 WPA funds approved. T. J. Foley, 550 Main street, WPA engineer.

New York

WHITE LAKE, N. Y.—White Lake sewer district plans constructing 2½ miles sewers and sewage disposal plant. Cost $45,000. Maturity in spring. A. Okun, Starr avenue, Monticello, N. Y., engineer.

New Jersey

MATAWAN, N. J.—Mayor and city council plan modernization of waterworks, including new filter system, and installing electric motors in place of steam pumping. L. Booz, Perth Amboy, N. J., engineer.

Pennsylvania

CARNEGIE, PA.—Superior Steel Corp., D. Pryde, manager in charge of operations, will raise building to accommodate new high-speed machinery.

HARRISBURG, PA.—General state authority, 600 North Second street, Harrisburg, receives bids to 11 a.m., March 1, for part two of new tuberculosis sanitorium near Butler, Butler county, Pa. Includes main hospital, nurses home, dormitories, power plant and equipment, water supply and sewage disposal plant.

HARRISBURG, PA. — General state authority, 600 North Second street, Harrisburg, receives bids to 11 a.m., March 1, for part two of new tuberculosis sanatorium near Butler, Butler county, Pa. Includes buildings, power plant and equipment, water supply and sewage disposal plant. Cost of entire project $2,035,000.

Ohio

CINCINNATI — Antonio Palazzolo & Co., 712 Central avenue, food products, plans installing motors, conveyors, electric hoists and other equipment in new six-story food products manufacturing and bulk distributing plant at 2009 Gilbert avenue. Cost with equipment over $125,000. Carlton, Frankenberger & Batson, 4122 Davis lane, architects.

CLEVELAND—Federal emergency administration of public works, Columbus, rejected original bids and will take new ones to Feb. 24 for westerly improvements to sewage works, contract 115, at West Fifty-eighth street and Bulkley boulevard. Estimated cost $145,000. George B. Gascoigne, Cleveland, engineer.

DILLONVALE, O.—Municipality soon takes bids for waterworks. Cost $100,000. P. W. Elwell, 5005 Euclid avenue, Cleveland, engineer.

MONROEVILLE, O.—Federal emergency administration of public works, Columbus, takes bids to Feb. 23 for constructing water softening and purification plant. Estimated cost $52,000. Champe, Finkbeiner & Associates, 1025 Nicholas building, Toledo, O., engineers.

SPRINGFIELD, O.—Crowell Publishing Co. plans plant expansion. Maturity in April. Cost $1,500,000.

WRIGHT FIELD, DAYTON, O.—War department, air corps, takes bids to 10 a.m., March 3, for one electric crane-type truck, capacity not less than 3000 pounds at 7-foot radius, delivery Randolph Field, Tex.

Michigan

ADRIAN, MICH.—Shoecraft, Drury & McNamee, Ann Arbor, Mich., engineers, have completed plans for constructing sewage treatment plant for the city of Adrian. Estimated cost $113,000.

BIRMINGHAM, MICH. — Shoecraft, Drury & McNamee, Ann Arbor, engineers, have completed plans for constructing sewage treatment plant for Birmingham. Estimated cost $30,000. (Noted in STEEL, Jan. 24, 1938)

FLINT, MICH.—Plans for water softening plant to be built as WPA project have been submitted to Flint city commission by James Pollock, city manager. Cost $750,000.

GRAND RAPIDS, MICH.—Hamilton & Weeber, Grand Rapids, engineers, are completing plans for constructing an electric lighting plant for city of Charlevoix, Mich. Approximate cost $100,000. Construction pends approval of bond issue.

HARTFORD, MICH.—Van Buren County Electric Co-operative, Hartford, plans 710 miles of transmission lines in Van Buren, Kalamazoo, and Berrien counties. Have REA approval. Cost $165,000.

STEPHENSON, MICH.—Federal government has approved sewage disposal and water supply project for the village. Cost $105,135, of which total the government will allot $70,159.

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YPSILANTI, MICH. — Harvey C. Holmes, city clerk, is taking bids for constructing sewage treatment plant and pumping station. Bids are due Feb. 25. Shoecraft, Drury & McNamee, Ann Arbor, engineers.

Illinois

CHICAGO—Rainier Metal Products Co., 2415 West Seventy-first street, manufacturer of metal goods, plans constructing one-story plant unit. Cost $45,000.

CLAY CITY, ILL.—City voted $25,000 bonds, and soon takes bids for constructing waterworks and distribution system. Cost $75,000. Russell & Axon, 4903 Delmar building, St. Louis, Mo., engineers.

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CRYSTAL LAKE, ILL.—City plans constructing sewage disposal plant.

PEKIN, ILL.—Corn Products Refining Co., 17 Battery place, New York, plans installing motors and controls, conveyors and other equipment in new addition to corn oil refinery at Pekin. Cost $275,000. Plans and specifications being prepared by company engineer at 333 North Michigan avenue, Chicago, Ill.

Alabama

ALABAMA—Cities of Guntersville, Hartselle, Sheffield and Russellville will probably begin work soon on municipal power systems. Estimated cost $500,000. (Noted in STEEL for Dec. 27, 1937).

BIRMINGHAM, ALA.—R. E. Boggs, 1427 South Eighteenth street, Birmingham, would like to purchase electric locomotive, 40-inch gage, 250 volts direct current, for use in underground mine work.

DECATUR, ALA.—City, R. M. Harris, mayor, will soon call for bids on municipal electric power system. Engineer will proceed with preparation of final plans and estimates. Cost $360,000. (Noted in STEEL for Dec. 27, 1937).

MOBILE, ALA.—Guy M. Spearman, president, Spearman Brewing Co., Pensacola, Fla., considering Mobile as site for branch plant.

MONTGOMERY, ALA. — Montgomery Oak Flooring Co. plans boiler house in connection with rebuilding woodworking mill recently damaged by fire.

MONTGOMERY, ALA. — Coca-Cola Bottling Co., 310 North avenue, northwest, Atlanta, Ga., or Stankope Elmore, manager, 18 Cloverdale park, plans two-story brick bottling plant. Site has been purchased. Plans by Robert & Co., Bona Allen building, Atlanta, Ga.

SHEFFIELD, ALA.—City, Hoyt Greer, mayor, granted $52,000 PWA funds for constructing electric distribution system.

TARRANT, ALA.—City, Roy Ingram, mayor, will probably begin preliminary work in two weeks on municipal power distribution system. Cost $329,000. (Noted in STEEL, Dec. 27, 1937)

Kentucky

ASHLAND, KY.—American Rolling Mill Co., Middletown, O., plans installing motors and controls, electric hoists, conveyors and other equipment in connection with expansion and improvement at branch plant here. Cost $175,000. F. E. Vigor, local manager.

LEXINGTON, KY. — Lexington water board, D. M. Watt, president, plans improvements to pumping station and filtration plant plus various replacements and extensions to waterworks system. Cost $150,000. Private plans.

LOUISVILLE, KY. — Louisville Water Co., L. S. Vance, chief engineer, rejected bids on pumps as part of flood-proofing plan. Alvord, Burdick & Howson, 20 North Wacker drive, Chicago, consulting engineers.

LOUISVILLE, KY. — Kentucky Utilities Co., Louisville, plans 16 miles new transmission lines as extensions in system. Will also make extensions in primary and secondary lines for rural electrification totaling 70 miles. Includes new power substation with initial capacity of 3500 kilovolt-amperes. Work is part of 1938 expansion program.

OWENSBORO, KY.—Chickasaw Wood Products Co., 2718 Pershing avenue, Memphis Tenn., branch factories in Louisville, Ky., and New Orleans, La., completed arrangements for establishment of barrel factory in building in eastern section.

Florida

JACKSONVILLE, FLA.—Treasury department, procurement division, takes bids to Feb. 24, invitation 9902, for centrifugal pump with 20-horsepower motor and magnetic starter, delivery, Gainesville, Fla.

Mississippi

COLUMBUS, MISS.—City, T. W. Harris, mayor, having engineers make study of electric situation with view to making contract with TVA for current.

GREENVILLE, MISS.—Arkansas Power & Light Co., Pine Bluff, Ark., plans transmission line over Leland Neck cutoff, Mississippi river, near Greenville. 6000-foot span to be supported by steel towers. Permission applied for.

NATCHEZ, MISS.—City proposes to issue $300,000 bonds to purchase site and construct factory building to be operated by Armstrong Rubber Co., manufacturer of tires for Sears, Roebuck & Co., Chicago. Orders will be placed soon for machinery. Total cost of plant $2,000,000.

North Carolina

FARMVILLE, N. C.—REA approved requisition for $20,342 for Pitt & Greene Electric Membership Corp. Portion of funds to be used for construction materials, poles, wires, transformers etc. Will serve customers along 56 miles of transmission lines in Greene and Pitt counties.

HIGH POINT, N. C.—City council voted to go ahead with plans to construct municipal hydroelectric plant on Yadkin river, and is considering plans for financing. E. M. Knox, city manager. Cost $5,300,000.

MURPHY, N. C.—State utilities commission, Raleigh, authorized improvement of telephone exchange of Bell Telephone Co., including installing battery system.

South Carolina

GREENVILLE, S. C.—J. E. Sirrine & Co., engineer, 215 South Main street, Greenville, S. C., reported to have directed survey of locations in sections of western North Carolina for representatives of French cigaret paper concern with view to locating plant to manufacture cigaret paper from flax straw.

Louisiana

SHREVEPORT, LA. — Southwestern Gas & Electric Co. plans expansion, installing underground electric cables, replacing overhead wires in business section.

Arkansas

PINE BLUFF, ARK. — State utilities commission, Little Rock, granted permission to Arkansas Power & Light Co., Pine Bluff, to construct 85 miles rural electric lines to serve 400 families in Pulaski, Faulkner and Pope counties. Cost $64,000. (Noted in STEEL, Feb. 7, 1938.)

Oklahoma

FAIRVIEW, OKLA. — Major County Electric association made final plans for 400-mile rural electric line in and near here. Cost $400,000. I. Jones, Fidelity National Bank building, Oklahoma City, engineer.

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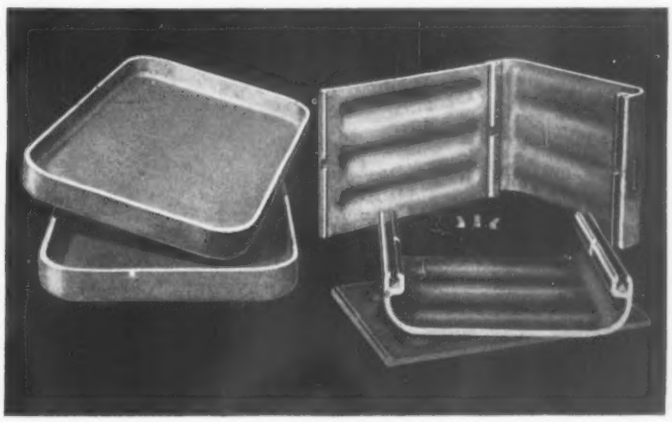

TONKAWA, OKLA.—City would like to purchase motor-driven centrifugal pump and motor, 2000 gallons per minute at 150-foot head, for waterworks. E. Davis, city clerk.

Wisconsin

CLAYTON, WIS.—Stella Cheese Co., Metropolitan Bank building, St. Paul, Minn., has plans for new steam power house at Clayton, including two 150-horsepower boiler units and auxiliary equipment. Work to begin soon. Ralph A. Richardson, Oppenheimer building, St. Paul, consulting engineer.

MILWAUKEE — Hummel & Downing Co., manufacturer of paper and fibre board containers, plans improvements to cost $500,000, including $150,000 for new equipment at main factory here.

PRAIRIE DU CHIEN, WIS.—Carroll Packing Co., newly organized, will invest $50,000 in remodeling and enlarging existing factory for meat processing, including new boiler house.

Minnesota

FERGUS FALLS, MINN. — Lake Region Co-operative Electrical association, Noble Huse, secretary, is taking separate bids to 1 p.m., March 1, for constructing rural electrical distribution system including a substation. Plans and specifications obtainable from Pillsbury Engineering Co., Second avenue south, Minneapolis, consulting engineer.

GLENCOE, MINN. — An additional $600,000 REA allotment has been made to the McLeod County Co-operative Power & Light association, Walter C. Jungclaus, secretary, to finance constructing 526 miles rural transmission lines in McLeod, Wright, Sibley, Renville, and Meeker counties. Pillsbury Engineering Co., 1200 Second avenue south, Minneapolis, consulting engineer.

MOORHEAD, MINN.—Red River Valley Co-operative Power association, George Henderson, secretary, Halstad, Minn., has submitted project to REA for approval with petitions signed by 1500 prospective customers. Plans require constructing 400 miles rural transmission lines in Clay, Norman and Polk counties.

OWATONNA, MINN.—City, Roy Phelps, city clerk, will submit plans to WPA for aid in constructing primary and secondary sewage treatment plants. Cost about $250,000. Application previously made to PWA but no allotment granted. P. C. Hosfield, city engineer. Buell & Winter Engineering Co., Insurance Exchange building, Sioux City, Iowa, consulting engineer.

Texas

CORPUS CHRISTI, TEX.—Southern Pipe Line Corp., 411 North Broadway, Corpus Christi, organized by Phillips Petroleum Co., Bartlesville, Okla., and Southern Minerals Corp., was granted charter and will soon begin constructing 10 miles of 6⅝-inch pipe from Turkey Creek field in Nueces county ten miles northwest of Corpus Christi to terminal of company at port.

GALVESTON, TEX. — Southwestern Bell Telephone Co., Harry G. Brickhouse, district manager, plans spending $20,000 in extending facilities in western part of city.

LANCASTER, TEX.—City, Ray Holder, mayor, votes March 1 on constructing light plant. Cost $75,000.

McKINNEY, TEX. — Grayson-Collin Electrical Co-operative, Shirley G. Taylor, project manager, applied for $43,000 funds for purchasing equipment, transformers, and substations. Total estimated cost $100,000. Texas Power & Light Co. will supply current.

PORT ARTHUR, TEX.—Gulf Oil Corp., Gulf building, Pittsburgh, Pa., plans installing motors and controls, conveyors, electrically-operated pumping machinery and other equipment in connection with expansion and improvements in oil refinery here. Cost over $1,000,000.

QUITMAN, TEX.—REA announced allotment of $103,000 to Woods County Electric Co-operative Inc., Quitman, and $5000 to Panola-Harrison Electric Co-operative Inc., Elysian Fields.

SAN ANTONIO, TEX. — Eugene J. Roth, Milam building, plans erecting broadcasting station at 317 Arden grove.

Kansas

LEAVENWORTH, KANS. — Board of water commissioners takes bids in March for waterworks improvements including 4,000,000-gallon-per-day filtration plant, covered reservoir, and new intake pumps. Cost $290,000. Black & Veatch, 4706 Broadway, Kansas City, Mo., engineers. (Noted in STEEL, Jan. 31, 1938)

North Dakota

CARRINGTON, N. DAK.—REA has given preliminary approval for constructing 100-mile power line into Foster county. A. I. Sharpe, Glenfield, in charge, is seeking REA funds to finance construction.

COOPERSTOWN, N. DAK. — REA has tentatively approved $111,000 loan application for constructing 100 miles rural transmission lines in Griggs and Foster counties. A. I. Sharpe, Glenfield, is in charge.

South Dakota

FT. MEADE, S. DAK. — United States government, quartermaster, Ft. Meade, takes bids to Feb. 24 for constructing and completing deep well turbine pump installation, pump house, piping and accessories. Plans obtainable from quartermaster.

Iowa

COUNCIL BLUFFS, IOWA—City plans waterworks improvements consisting of new towers for hill district, installing valve system in distribution system, and improvements and enlargements at pumping station. Cost $50,000. C. Boyne, city engineer.

DENISON, IOWA—City is contemplating erecting a forced-draft cooling tower system for municipal light plant. Cost about $12,000.

DES MOINES, IOWA—City, C. Roy Hansen, city clerk, is taking bids to 9 a.m., Feb. 24, for equipment for screening, grit removal, sludge digestion, and sewage pumping machinery for sewage disposal plant now under construction. John M. Tippee, city engineer.

LARCHWOOD, IOWA—City is preparing plans for constructing municipal light plant. Cost $26,000. Buell & Winter Engineering Co., Insurance Exchange building, Sioux City, Iowa, consulting engineer.

NEW HAMPTON, IOWA — Richard E. Lutz, Minneapolis, Minn., consulting engineer, has submitted reports to the city council on contemplated purchase of diesel engines and miscellaneous equipment for power plant. Cost between $110,000 and $200,000.

SIOUX CITY, IOWA—Central Electric & Telephone Co., Sioux City, announced plans to spend $450,000 on new construction work this year.

Nebraska

LINCOLN, NEBR. — City, Theodore H. Berg, clerk, is making survey of necessary improvements at its A street pumping station, and recommendations will soon be made by Black & Veatch, 4706 Broadway, Kansas City, Mo., consulting engineers. City engineer is D. L. Erickson.

OSMOND, NEBR. — City, care of city clerk, contemplates constructing sewage disposal plant with WPA aid.

TEKAMAH, NEBR. — WPA has approved allotment of $35,000 to city to aid financing construction of sewage disposal plant.

WEST POINT, NEBR. — WPA has approved project of constructing sewage disposal plant. W. A. Stieren, city clerk. C. V. Stewart, city engineer.

Idaho

RIGBY, IDAHO—WPA has approved grant of $29,805 for proposed sewage disposal plant.

Pacific Coast

AVON, CALIF.—Pacific Gas & Electric Co., 245 Market street, San Francisco, plans power plant. Cost over $1,000,000.

LOS ANGELES—Board of supervisors, Los Angeles county, R. E. Shonerd, engineer, Hall of Records building, takes bids to Feb. 23 for new 500-horsepower water tube boiler for power house at general hospital, including installing boiler and apparatus. Specification 405. Cost $50,000.

LOS ANGELES—Los Angeles water and power bureau, 207 South Broadway, has plans under way for new two-story indoor power substation and distribution system on San Vincente boulevard. Cost with equipment $215,000. Also will construct power substation and distribution station on North La Cienga street. Cost with equipment $140,000. Total cost of two projects $355,000.

OLEUM, CALIF.—Pacific Gas & Electric Co., 245 Market street, San Francisco, plans steam electric power plant here. Cost over $1,000,000.

HOOD RIVER, OREG.—Hood River Apple Growers association, Hood River, plans installing motors and controls, conveyors, and other equipment in connection with rebuilding four-story packing plant recently damaged by fire.

NORTH BEND, OREG.—Pacific Sea Products Co., K. Hovden, manager, plans installing cannery equipment at present reduction plant.

THE DALLES, OREG.—Seufert Bros. are building an addition to their fruit and vegetable cannery at Big Eddy.

GOLDENDALE, WASH.—Northwestern Electric Co. has been granted water rights on the White Salmon river where company proposes building hydroelectric plant.

SEATTLE—Shell Oil Co. will build a steel pump house at its local plant, 2541 Eleventh avenue, southwest.

Canada

LA TUQUE, QUE.—St. Maurice Power Corp. soon takes bids for constructing 162,000-horsepower hydroelectric plant with dam, power house and four generating units. Private plans. Part of $12,500,000 development.